

Exceptional Events Demonstration for
PM_{2.5} and PM₁₀ Exceedances in
Washoe County from the
2014 King Fire Event
September 14, 2014 to September 25, 2014

Submitted to U.S. EPA Region IX December 1, 2015

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ACRONYMS

AQI	Air Quality Index
AQMD	Washoe County Health District - Air Quality Management Division
AQS	Air Quality System
BAM	Beta Attenuation Monitor
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DRI	Desert Research Institute
EC	Elemental Carbon
EE	Exceptional Event
EER	Exceptional Events Rule
EPA	U.S. Environmental Protection Agency
°F	Fahrenheit Degrees
FEM	Federal Equivalent Method
FR	Final Rule
FRM	Federal Reference Method
HA 87	Hydrographic Area 87
HYSPLIT	Hybrid Single-Particle Lagrangian Integrated Trajectory
µg/m ³	Micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NCore	National Core Multi-Pollutant Monitoring Station
NIAA	Nevada Interscholastic Activities Association
NO ₂	Nitrogen Dioxide
NWS	National Weather Service
OC	Organic Carbon
O ₃	Ozone
PST	Pacific Standard Time
PM	Particulate Matter
PM _{2.5}	Particulate Matter less than or equal to 2.5 microns in aerodynamic diameter
PM ₁₀	Particulate Matter less than or equal to 10 microns in aerodynamic diameter
RWC	Residential Wood Combustion
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Station
WCSD	Washoe County School District

1.0 INTRODUCTION

1.1 Statement of Purpose

The Washoe County Health District, Air Quality Management Division (AQMD) has determined that Particulate Matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$) and Particulate Matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}) concentrations exceeding the National Ambient Air Quality Standards (NAAQS) between September 14, 2014 and September 25, 2014, qualify as an exceptional event under Title 40, Part 50 of the Code of Federal Regulations (40 CFR 50), the final Exceptional Events Rule (EER). The purpose of this document is to petition the Regional Administrator for Region IX of the U.S. Environmental Protection Agency (EPA) to exclude air quality monitoring data for $PM_{2.5}$ and PM_{10} from the normal planning and regulatory requirements under the Clean Air Act (CAA) in accordance with the EER. This exceptional event demonstration underwent public review and comment before submittal to EPA (see Section 6.2).

Between September 14, 2014 and September 25, 2014, the AQMD monitored 6 exceedances of the 24-hour $PM_{2.5}$ NAAQS and 1 exceedance of the 24-hour PM_{10} NAAQS across its air quality monitoring network due to smoke plume impacts from the King wildfire in California. This document demonstrates, in accordance with the EER, that these NAAQS exceedances would not have occurred without the wildfire impacts. See Table 1.1 for the dates and data being requested for exclusion.

1.2 Scope of Demonstration

On March 22, 2007, the EPA promulgated the “Treatment of Data Influenced by Exceptional Events; Final Rule” (72 FR 13560) pursuant to the 2005 amendment of CAA Section 319. This rule is known as the EER. The EER contains definitions, procedural requirements, requirements for air agency demonstrations, and criteria for EPA approval for the exclusion of air quality data from regulatory decisions. The EER states that the EPA has the authority to exclude air quality monitoring data from regulatory determinations related to exceedances or violations of the NAAQS and avoid designating an area as nonattainment, redesignating an area as nonattainment, or reclassifying an existing nonattainment area to a higher classification if a State adequately demonstrates that an exceptional event has caused an exceedance or violation of a NAAQS.

The purpose of this document is to demonstrate to the EPA that the exceedances measured in the Truckee Meadows between September 14, 2014 and September 25, 2014 were due to the impacts of the King Fire in California. This demonstration package will justify data exclusion according to 40 CFR 50.14, which provides evidence that:

1. The event meets the definition of an exceptional event as described in the CAA 319:
 - a. It affects air quality
 - b. Is not reasonably controllable or preventable,
 - c. Is an event caused by human activity that is unlikely to recur at a particular location or a natural event,

- d. Is determined by EPA through the process established in the regulations to be an exceptional event (Federal Register, Vol 72, p. 13562, Section IV.D).
2. There is a clear and causal relationship between the measured exceedance or violation and the event.
3. The event is associated with a measured concentration in excess of normal historical fluctuations, including background.
4. There would have been no exceedance or violation but for the event.

1.3 Exceptional Events Definition and Demonstration Criteria

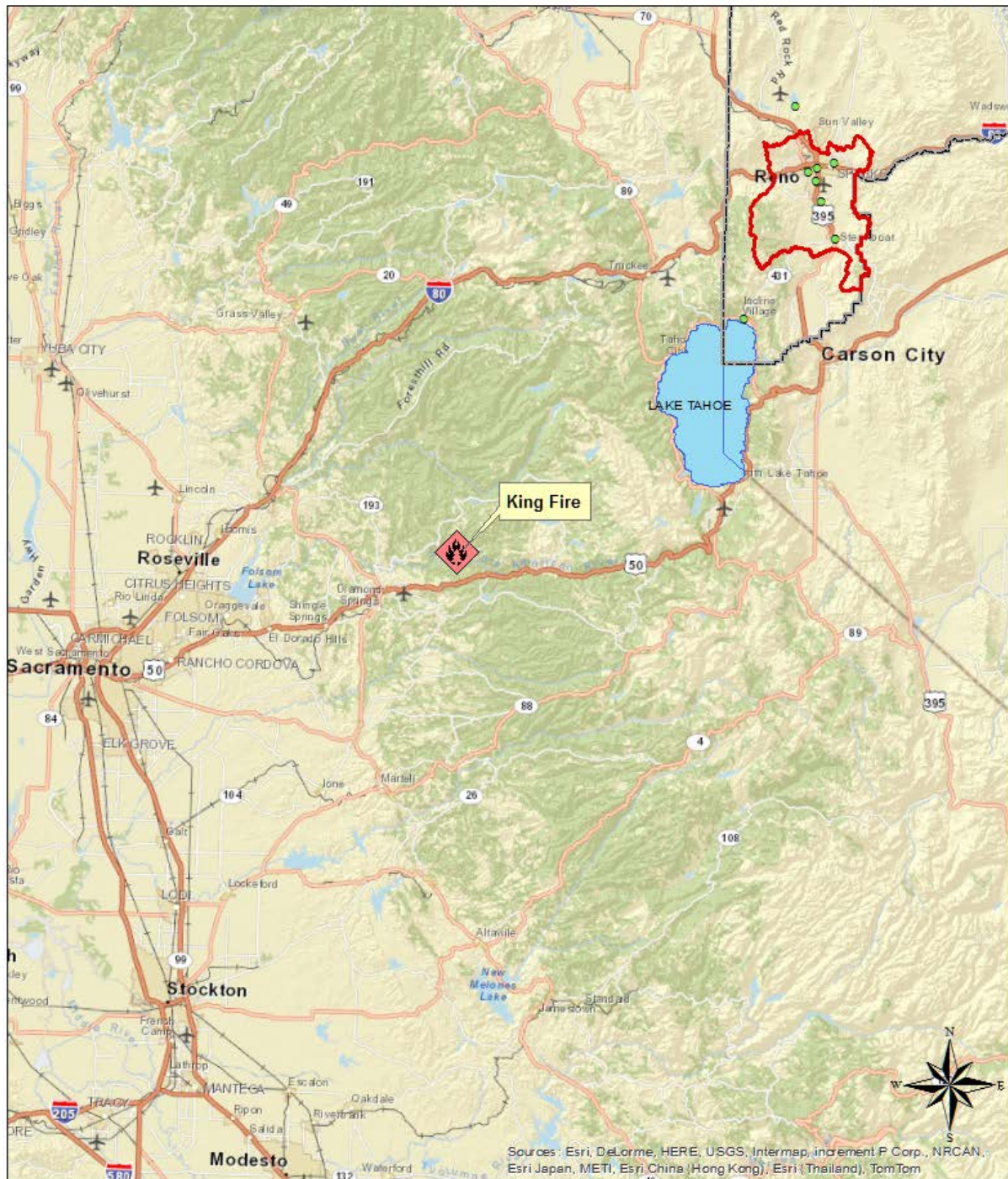
The EER states that both wildfires and wildland fire use fires fall within the meaning of “natural events”. Therefore, ambient particulate matter and ozone concentrations due to smoke from a wildland fire will be considered for treatment as an exceptional event if the fire is determined to be either a wildfire or wildland fire use fire. Such data is to be treated as an exceptional event under the rule, provided that the state demonstrates that the violation would not have occurred “but for” the event, that is, absent the impact of wildland fire emissions, the critical value would have been below the NAAQS.

The following analysis will address these definitions and provide documentation to establish that the 2014 wildfires met the criteria as set forth in 40 CFR 50.14 and the EER. Specifically, that the event affected air quality by demonstrating that: 1) there was a clear causal relationship between the 24-hour $PM_{2.5}$ and PM_{10} concentrations in Washoe County and the event, 2) that the event was above normal historical fluctuations, (including background), and 3) the 24-hour $PM_{2.5}$ and PM_{10} concentrations in Washoe County would not have exceeded the standard but for the event.

1.4 Overview of Event

On September 13, 2014 the King Fire started off of King of the Mountain Road near Pollock Pines, California due to human activities. Pollock Pines is located approximately 57 miles east of Sacramento and 116 miles southwest of the Reno/Sparks area. Full containment of the fire did not occur until October 10, 2014, after 97,717 acres were burned. The fire injured 12 people and forced evacuations of 3,000 residents. The King Fire destroyed 12 single family residences and 68 other residential structures. Smoke from impacted the Reno/Sparks area during the duration of the fire. Figure 1.1 shows the location of the King Fire.

Figure 1.1: Location of King Fire



Legend

- Monitoring Sites
- ⬮ Hydrographic Area 87

Throughout the duration of the 11-day episode, Washoe County experienced 7 exceedances, with the highest 24-hour PM_{2.5} concentration reaching 100.9 micrograms per cubic meter (µg/m³) and PM₁₀ reaching 159 µg/m³. Table 1.1 lists the exceedances of PM_{2.5} and PM₁₀ on the date it occurred during the episode per monitor. Figures 1.2 and 1.3 show the respective PM_{2.5} and PM₁₀ daily averages throughout the duration of the episode. The PM_{2.5} 3-year (2011-2013) September Federal Equivalent Method (FEM) 98th Percentile for Reno3 is 14.9 µg/m³ and the FEM Median is 6.2 µg/m³. The PM₁₀ 3-year (2011-2013) September FEM 98th Percentile for Galletti is 70.8 µg/m³ and the FEM Median is 30.0 µg/m³. For details on the historical fluctuations, see Section 4.0.

Table 1.1 PM_{2.5}/PM₁₀ 24-hour NAAQS Exceedances (µg/m³)

Monitoring Site	09/15	09/16	09/18	09/22	09/23	09/24
Pollutant	PM_{2.5}	PM_{2.5}	PM_{2.5}/PM₁₀	PM_{2.5}	PM_{2.5}	PM_{2.5}
Galletti FEM	39.7	46.4	100.2/159	57.6	87.4	47.0
Reno3 FEM	37.8	39.7	100.9	62.0	93.0	36.9
Reno3 Des. FRM(1)	N/A*	N/A*	N/A*	N/A*	87.5	N/A*
Reno3 Col. FRM(2)	N/A*	N/A*	N/A*	N/A*	86.6	N/A*
Sparks FEM	37.3	41.3	98.0	54.5	83.5	45.7

*FRM monitors were not run during this 24-hour period.

In this exceptional event document, AQMD is requesting to exclude all PM_{2.5} FEM and Federal Reference Method (FRM) data between September 14, 2014 at 0000 Pacific Standard Time (PST) to September 25, 2014 2300 PST and PM₁₀ FEM data on September 18, 2014 at 0000 PST to 2300 PST from NAAQS determinations. See Table 1.2 for a daily average summary of the requested data to be excluded. The PM_{2.5} and PM₁₀ FEM monitors located at Reno3, Sparks, and Galletti sites are MetOne Beta Attenuation Monitors (BAMs), which are run on a continuous basis. The PM_{2.5} FRM monitors located at the Reno3 site are BGI PQ200 samplers run on a one in three day sampling as a part of the State and Local Monitoring Site (SLAMS) PM_{2.5} collocation and National Core Multi-Pollutant Monitoring Station (NCore) requirements.

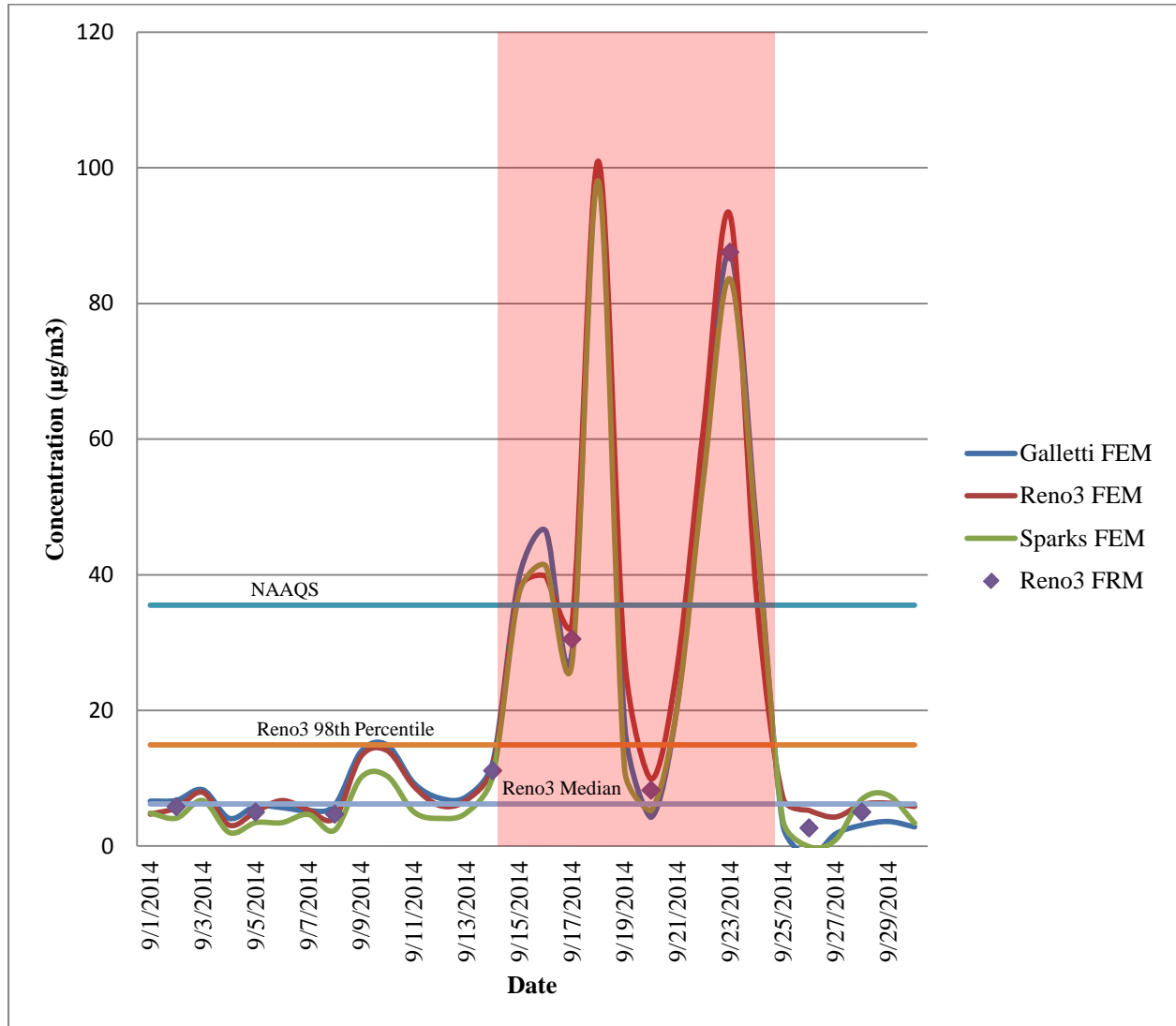
Table 1.2 FEM/FRM PM_{2.5} and FEM PM₁₀ daily 24-hour midnight to midnight averages to be excluded

Date	PM _{2.5} Concentrations (µg/m ³)			PM ₁₀ Concentrations (µg/m ³)
	Reno3 FEM / FRM	Sparks FEM	Galletti FEM	Galletti FEM
	24-hour Average			
09/14/2014	11.8/11.1	10.4	12.4	-
09/15/2014*	37.8	37.3	39.7	-
09/16/2014*	39.7	41.3	46.4	-
09/17/2014	32.8/30.5	27.0	28.5	-
09/18/2014**	100.9	98.0	100.2	159.2
09/19/2014	27.4	11.1	17.7	-
09/20/2014	9.8/8.2	5.2	4.2	-
09/21/2014	26.6	20.7	20.8	-
09/22/2014*	62.0	54.5	57.7	-
09/23/2014*	93.0/87.5	83.5	87.4	-
09/24/2014*	36.9	45.7	47.0	-
09/25/2014	7.1	3.8	3.1	-

*Exceedance day, a day in which at least one of the sites recorded one exceedance of the primary 24-hour PM_{2.5} NAAQS.

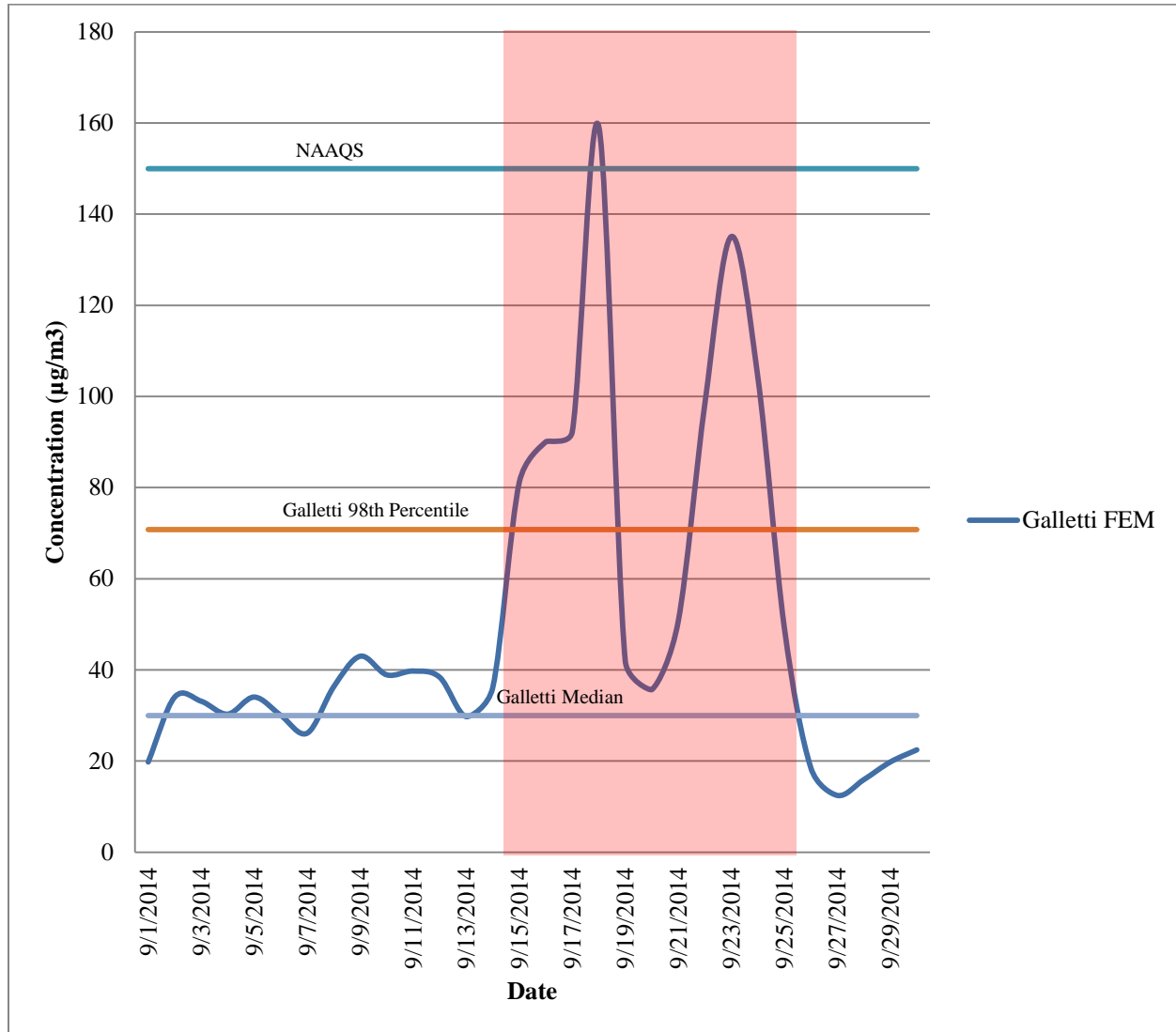
**Exceedance day, a day in which at least one of the sites recorded one exceedance of the primary 24-hour PM_{2.5} and PM₁₀ NAAQS.

Figure 1.2 PM_{2.5} FRM & FEM NAAQS Averages during King Fire



*Exceptional event data from the Rim Fire is included in 2013's September statistics.

Figure 1.3 PM₁₀ FEM NAAQS Averages during King Fire



*Exceptional event data from the Rim Fire is included in 2013's September statistics.

2.0 OVERVIEW OF AREA IMPACTED BY EXCEPTIONAL EVENT

2.1 Regional Description

Washoe County is located in the northwest portion of Nevada. It is bounded by California, Oregon, and the Nevada counties of Humboldt, Pershing, Storey, Churchill, Lyon, and Carson City (Figure 2.1). The Truckee Meadows is approximately 200 square miles in size and situated in the southern portion of Washoe County. It is geographically identified as Hydrographic Area 87 as defined by the State of Nevada, Division of Water Resources. Most of Washoe County's urban population lives in the Truckee Meadows. Anthropogenic activities, such as automobile use and residential wood combustion, are also concentrated here.

The Truckee Meadows sits at an elevation of 4,400 feet above sea level and surrounded by mountain ranges. To the west, the Sierras rise to elevations of 9,000 to 11,000 feet. Hills to the east reach 6,000 to 7,000 feet. The Truckee River, flowing from the Sierras eastward, drains into Pyramid Lake to the northeast of the Truckee Meadows. Wintertime temperature inversions combined with light winds can contribute to elevated levels of PM_{2.5}, PM₁₀, Nitrogen Dioxide (NO₂), and Carbon Monoxide (CO). These air pollution episodes persist until stronger winds scour the cold air out of the valley and break the temperature inversion.

Northern Nevada receives an abundant amount of sunshine and solar radiation during the summer months. Ozone (O₃) concentrations are highest during the months of May through September. Summertime afternoon winds (Washoe Zephyr) typically keep O₃ concentrations from reaching unhealthy levels.

Wildfire smoke can cause significant air pollution episodes in Washoe County. Winds can transport smoke from wildfires hundreds of miles away. The initial impact will be reduced visibility. If the smoke reaches ground level, then increases in all air pollutants will be noticeable. The best air pollutant indicators are PM_{2.5}, PM₁₀, NO₂, and CO. An increase in O₃ can sometimes, but not always, be associated with wildfire smoke. Elemental and organic carbons are also good wildfire smoke markers, especially if the fires occur outside the residential wood combustion (RWC) season. Prescribed burns may also cause elevated air pollution levels, and its indicators are similar to wildfires.

High winds are common in Northern Nevada and can occur any time of the year. These winds can re-entrain geologic material from as far away as Honey Lake, California and Northwestern Nevada, then transport the material to Washoe County. High wind events in Asia can also impact Washoe County. Particulate matter (PM) from wind events in the Gobi Desert has been transported by the jet stream to North America. Because the PM from high winds is geologic, the best air pollutant indicator is PM₁₀.

Figure 2.1
Washoe County, Nevada



Sitting in the rain shadow of the Sierras, Reno-Sparks metropolitan area exhibits a cold semi-arid or steppe climate. Most precipitation occurs in winter and spring. Summer thunderstorms can occur anytime between April and October. Winter snowfall and spring showers are typically light. Occasionally, highs in the summer reach 100+ degrees Fahrenheit (°F) and lows in the winter dip below 20 °F. Average annual rainfall in the Reno/Sparks metropolitan area, measured at Reno-Tahoe International Airport, is approximately 7.4 inches. Table 2.1 lists temperature and rainfall averages in Washoe County from 1981-2010.

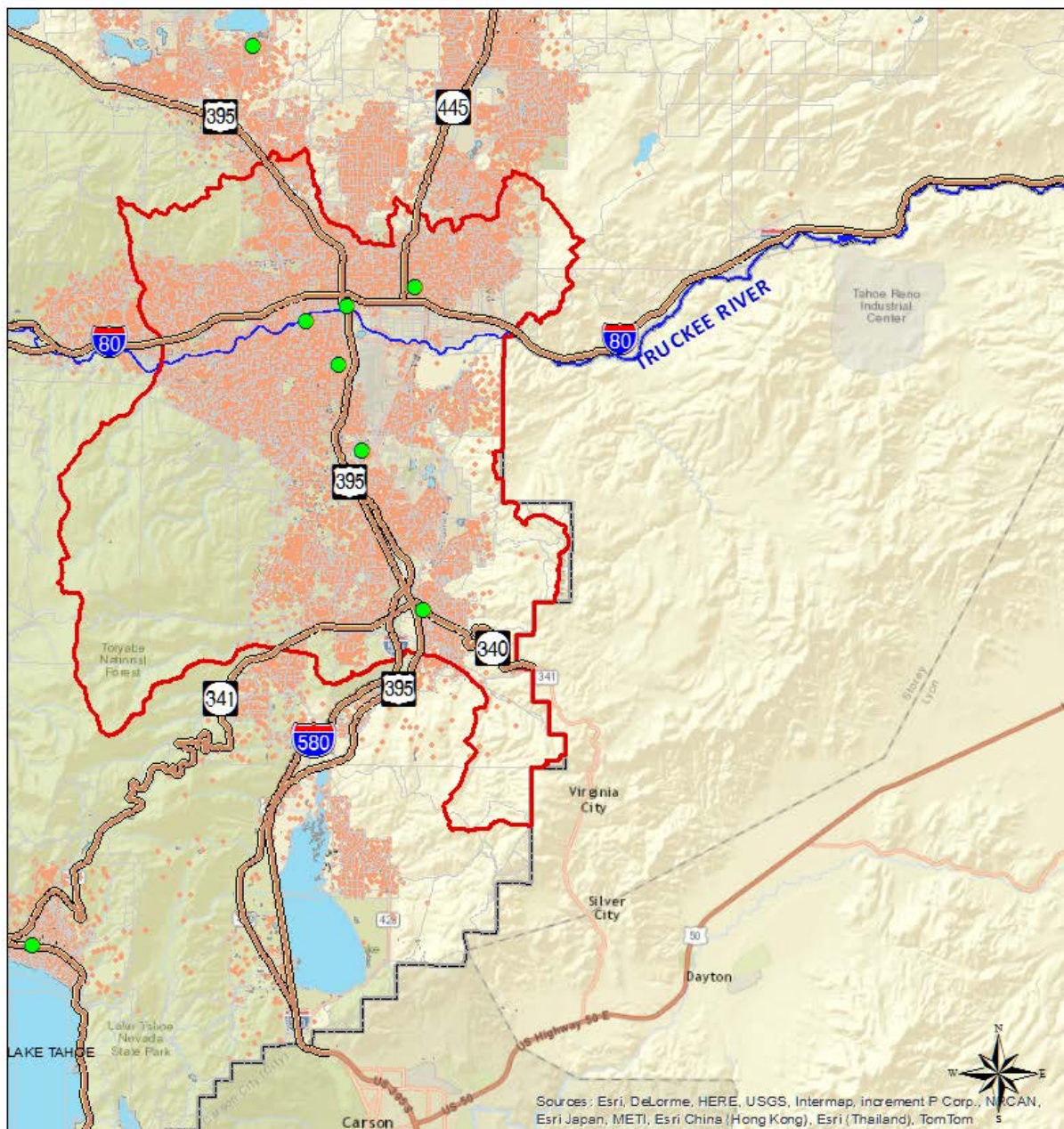
Table 2.1 Monthly Averages for Temperature and Rainfall (1981-2010) Washoe County

Month	Maximum (°F)	Minimum (°F)	Average (°F)	Rainfall (inch)
January	45.7	25.4	35.6	1.03
February	51.0	28.9	39.9	1.02
March	57.9	33.5	45.7	0.76
April	63.9	37.8	50.9	0.47
May	73.5	45.5	59.5	0.49
June	83.3	52.0	67.7	0.51
July	92.2	57.7	74.9	0.18
August	90.6	55.8	73.2	0.23
September	82.0	48.5	65.2	0.35
October	69.2	38.8	54.0	0.51
November	55.0	30.5	42.7	0.82
December	45.6	25.0	35.3	1.03

<http://www.ncdc.noaa.gov>

The 2012 population of Washoe County was 427,704. Approximately 66 percent of Washoe County's residents live in the Truckee Meadows, which encompasses the cities of Reno and Sparks. Figures 2.2 and 2.3 depict population density and land cover, respectively, in Washoe County along with the two major transportation routes, Interstates I-80 and I-580.

Figure 2.2: Washoe County Population Density

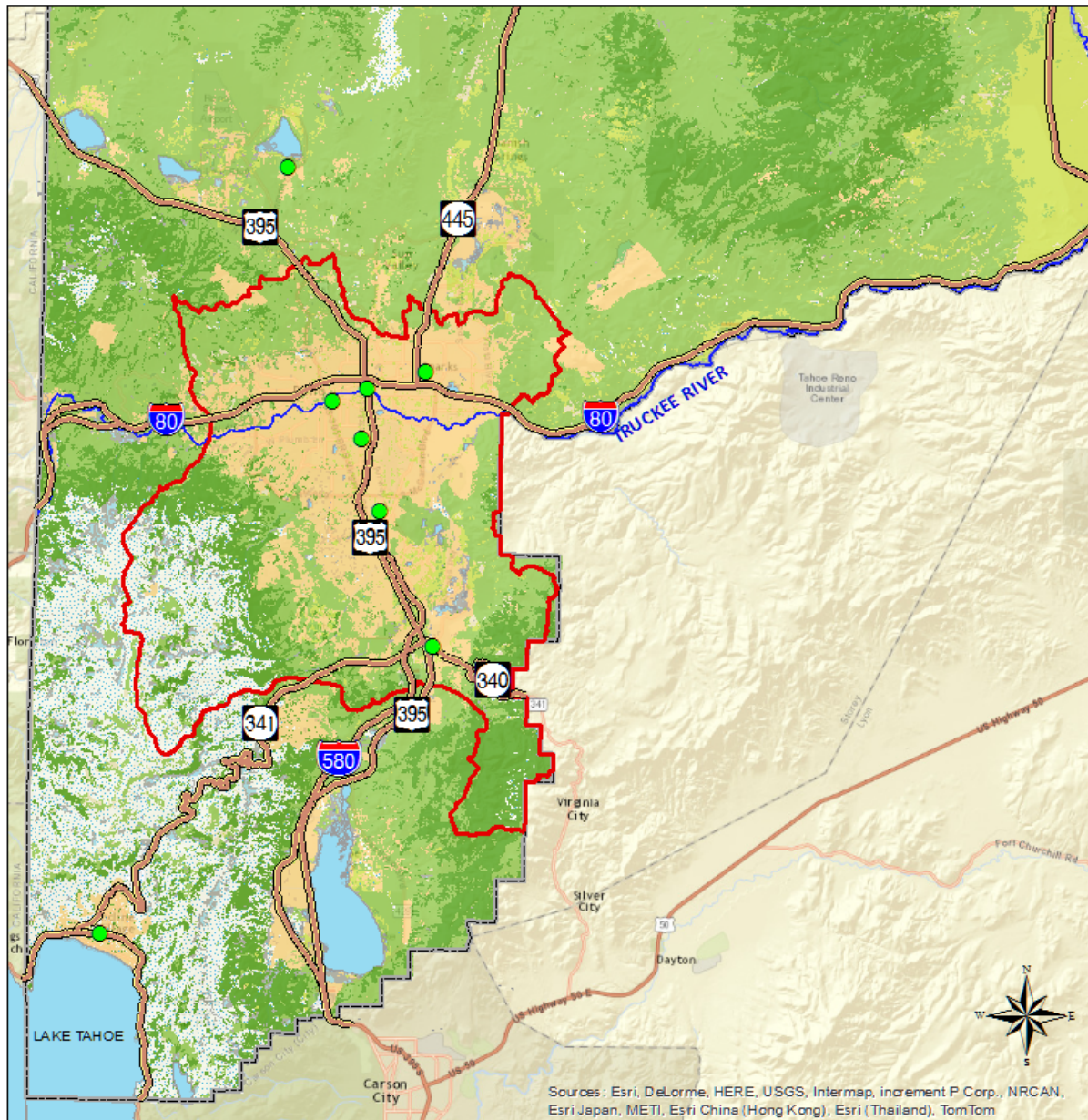


0 0.75 1.5 3 4.5 6 Miles

Legend

- WC Monitoring Sites
- Hydrographic Area 87
- WC Boundary
- 2010 WC Census Blocks
- 1 Dot = 8.33333333
- TAPERSONS

Figure 2.3: Washoe County Land Cover



0 1 2 4 6 8 Miles

Legend

WC Monitoring Sites



Hydrographic Area 87



WC Boundary



landcover System Group

Montane to Alpine

Lower Montane

Sagebrush Semidesert

Basins and Desert Scrub

Sand Dunes, Badlands, Cliff and Canyons

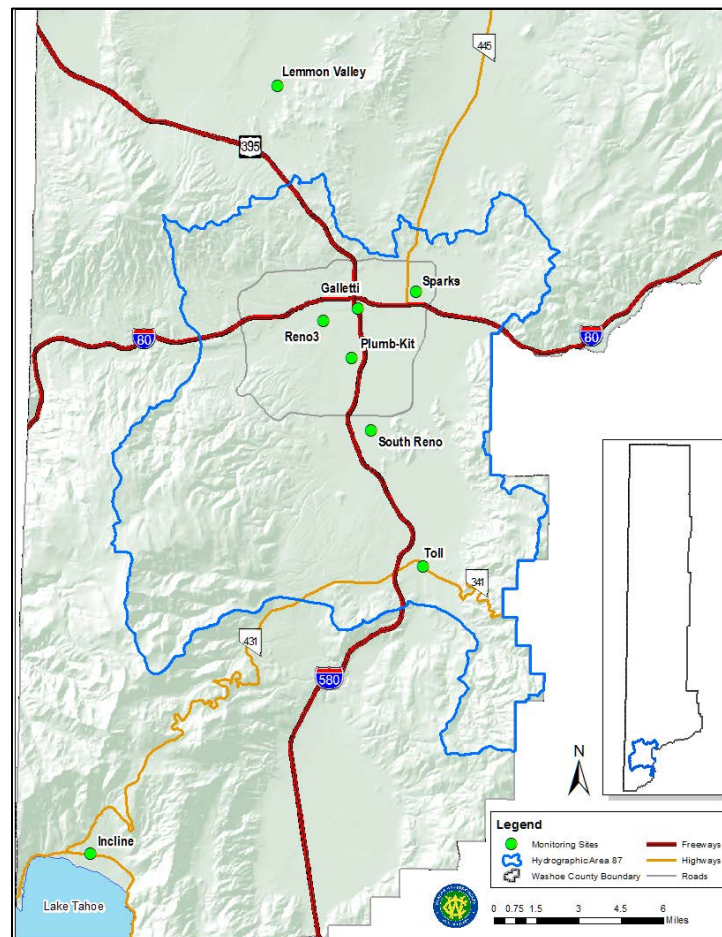
Riparian, Wetland and Aquatic

Other

2.2 Overview of Monitoring Network

The AQMD operates 8 ambient air monitoring sites in Washoe County (Figure 2.4). The blue boundary delineates Hydrographic Area 87 (HA 87) as defined by the State of Nevada, Division of Water Resources and is currently designated as “serious” non-attainment for the 24-hour PM₁₀ NAAQS.^{1,2} Washoe County is classified as “attainment” or “unclassifiable/attainment” for all other pollutants and averaging times. Table 2.2 lists the parameters monitored in 2014 during the King Fire, sorted by site.

Figure 2.4
Washoe County Health District - AQMD Ambient Air Monitoring Sites



¹ 40 CFR 81.329.

² In July 2009, the AQMD submitted a State Implementation Plan (SIP) revision to EPA requesting redesignation of HA 87 to an attainment/maintenance area for the 24-hour PM₁₀ NAAQS. On April 19, 2011, EPA published a final rule (76 FR 21807) finding that 1) the Truckee Meadows failed to attain the NAAQS by the applicable date and 2) the Truckee Meadows is currently attaining the NAAQS based on recent monitoring data (2007-2009). The rule does not change the “Serious” non-attainment designation. In November 2014, the AQMD submitted an updated SIP revision to EPA requesting redesignation of HA 87 to an attainment/maintenance area for the 24-hour PM₁₀ NAAQS. This submittal supercedes the 2009 submittal.

Table 2.2: List of Monitoring Sites and Pollutants Monitored in 2014 During the King Fire

Network Type Site																
SLAMS	O ₃	CO	Trace CO	Trace NO	NO ₂	NO _x	Trace NO _y	Trace SO ₂	PM ₁₀ (manual)	PM ₁₀ (continuous)	PM _{2.5} (manual)	PM _{2.5} (continuous)	PM _{coarse} (manual)	PM _{coarse} (continuous)	PM _{2.5} Speciation	Meteorology
Galletti		✓								✓		✓		✓		✓
Incline	✓															
Lemmon Valley	✓	✓														
Plumb-Kit										✓						✓
South Reno	✓	✓								✓						✓
Sparks	✓	✓								✓		✓		✓		✓
Toll	✓	✓								✓						✓

NCore ³																
Reno3	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

Speciation Trends																
Reno3															✓	

The AQMD's ambient air monitoring network meets the minimum monitoring requirements for all criteria pollutants pursuant to 40 CFR 58, Appendix D. Washoe County's monitoring network is reviewed annually pursuant to 40 CFR 58.10 to ensure the network meets the monitoring objectives defined in 40 CFR 58, Appendix D (See Appendix A for EPA Annual Network Plan Approval Letter). Data was collected and quality assured in accordance with 40 CFR 58 and submitted to the Air Quality System (AQS). Additionally, 2014 data was certified on April 30, 2015, and the Data Certification Letter was submitted to EPA Region IX on April 30, 2015 (See Appendix B for the Data Certification Letter).

³ NCore monitoring began December 2010.

3.0 CLEAR CAUSAL RELATIONSHIP

3.1 Introduction

A demonstration of the clear causal connection between the occurrence of the King Fire and the 24-hour PM_{2.5} and PM₁₀ exceedances that occurred during the period of September 14 through September 25, 2014 is demonstrated in this section. Specifically, this section provides compelling evidence that: 1) the wildfire occurred, 2) the smoke plume from this wildfire impacted Washoe County, and 3) that the fine particulates carried from the wildfire increased PM_{2.5} and PM₁₀ concentrations at 3 sites in the Washoe County monitoring network.

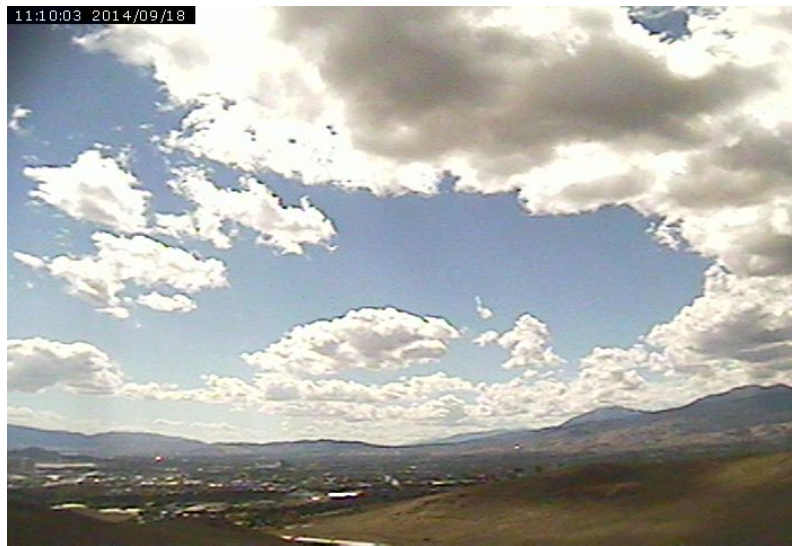
3.2 Meteorological Conditions

Six days out of the eleven days between September 14 through September 25, 2014 an exceedance of the 24-hour PM_{2.5} and/or PM₁₀ NAAQS occurred. Smoke was visible in Reno and Sparks every day with little to no relief. Below is an Area Forecast Discussion from September 18, 2014 with a corresponding Webcam photo from the Desert Research Institute (DRI) during that time.

AREA FORECAST DISCUSSION

NATIONAL WEATHER SERVICE RENO NV (309 PM PDT THU SEP 18 2014)

“...SMOKE FROM THE KING FIRE WEST OF TAHOE WILL CONTINUE TO FLOW INTO THE NORTH TAHOE AND RENO AREAS THROUGH THIS EVENING AND TONIGHT. BY TONIGHT, WINDS WILL BEGIN TO SHIFT TO THE EAST, HELPING TO IMPROVE THE SMOKEY SKIES FRIDAY AND SATURDAY. THERE IS MEDIUM TO HIGH CONFIDENCE THAT THE WINDS WILL REMAIN OUT OF THE EAST THROUGH THE WEEKEND WITH IMPROVING CONDITIONS OVER WESTERN NEVADA. AS FOR LAKE TAHOE THIS WEEKEND, SATURDAY LOOKS PRETTY GOOD FOR EASTERLY WINDS KEEPING SMOKE OUT OF THE BASIN, ALTHOUGH BY SUNDAY THERE MAY BE SOME SMOKE CREEPING BACK INTO THE BASIN LATE IN THE DAY AS LIGHT WESTERLY WINDS RETURN. THIS COULD IMPACT WEEKEND EVENTS AROUND LAKE TAHOE...”



3.3 Smoke Plume Trajectory

This comprehensive weight of evidence includes documentation of the extensive nature of the fires by using the Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model trajectories (both forward and backward) and NOAA's Hazard Management System smoke plume maps.

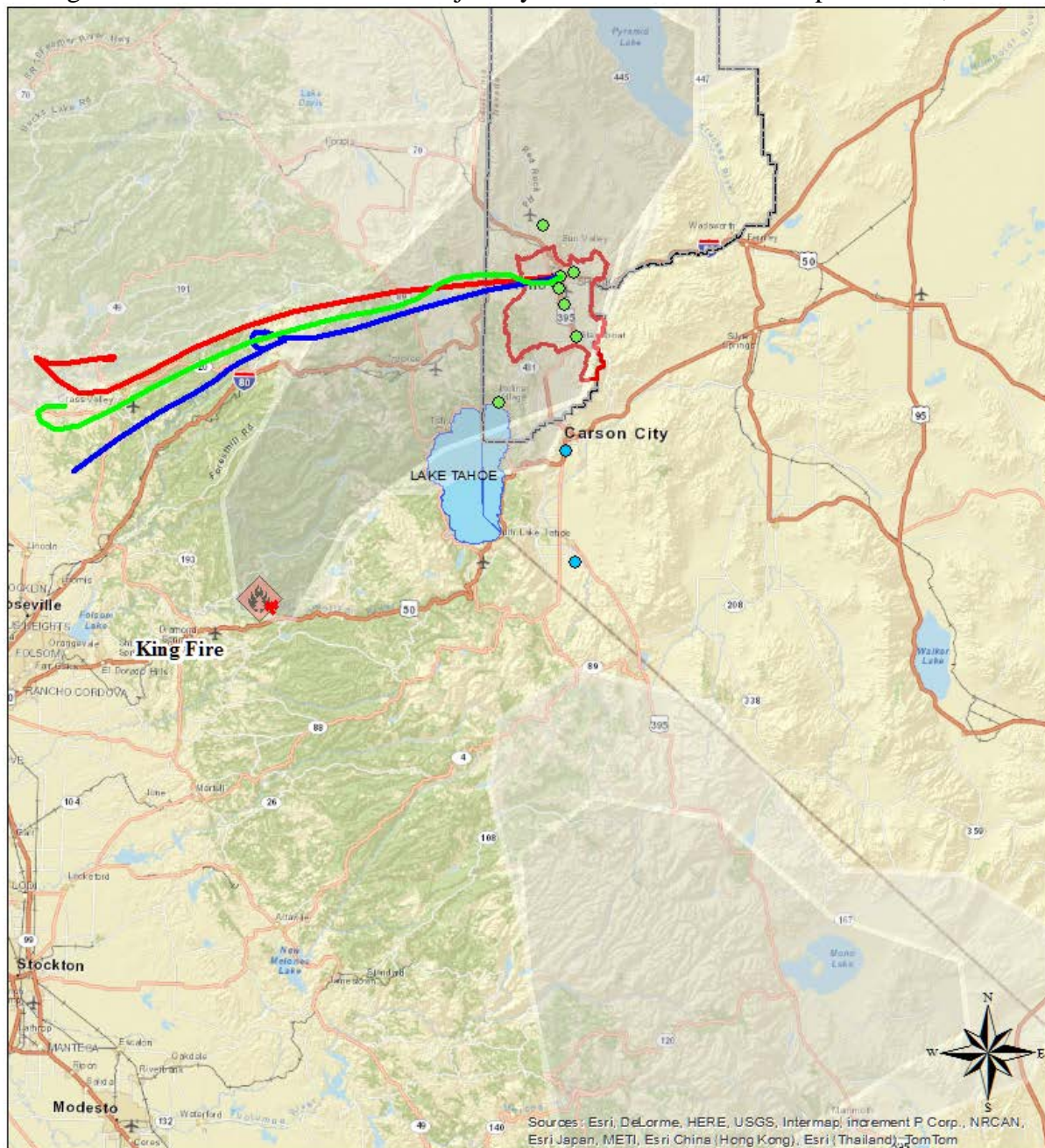
The HYSPLIT model computes simple air parcel trajectories. Its calculation method is a hybrid between the Lagrangian approach, which uses a moving frame of reference as the air parcels move from their initial location, and the Eulerian approach, which uses a fixed three-dimensional grid as a frame of reference. HYSPLIT backward trajectories show the path an air parcel took backward in hourly steps for a specified length of time. Applications include tracking the release of radioactive material, volcanic ash, and wildfire smoke.

A backward trajectory (new trajectory every eight hours) and smoke plume map is provided for each day during the exceptional event. These maps visually identify the connection between the King Fire and elevated $PM_{2.5}$ and PM_{10} concentrations in the Truckee Meadows. The forward HYSPLIT trajectories, originating from the King Fire, are included in the Appendix C as supporting evidence to show consistent transport to Washoe County as compared to the backward trajectories.

Figures 3.1 through 3.12 contain the combined HYSPLIT trajectories, fire extent, and smoke plume maps affecting the air quality in Washoe County from September 14, midnight, through September 25, midnight. Each map includes 24-hour backward trajectories (with three different starting times, separated by 8 hours) arriving at the Galletti monitoring site, the active portion of the King Fire, and the area covered by the smoke plume.

The backward trajectories demonstrate that the air mass and smoke plume were exacerbating $PM_{2.5}$ and PM_{10} concentrations in Washoe County. These maps show that the King Fire smoke plume clearly impacted PM monitors in the Truckee Meadows.

Figure 3.1: Backward HYSPLIT Trajectory and Smoke Plume on September 14, 2014



September 14, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

- NDEP
- WC AQMD

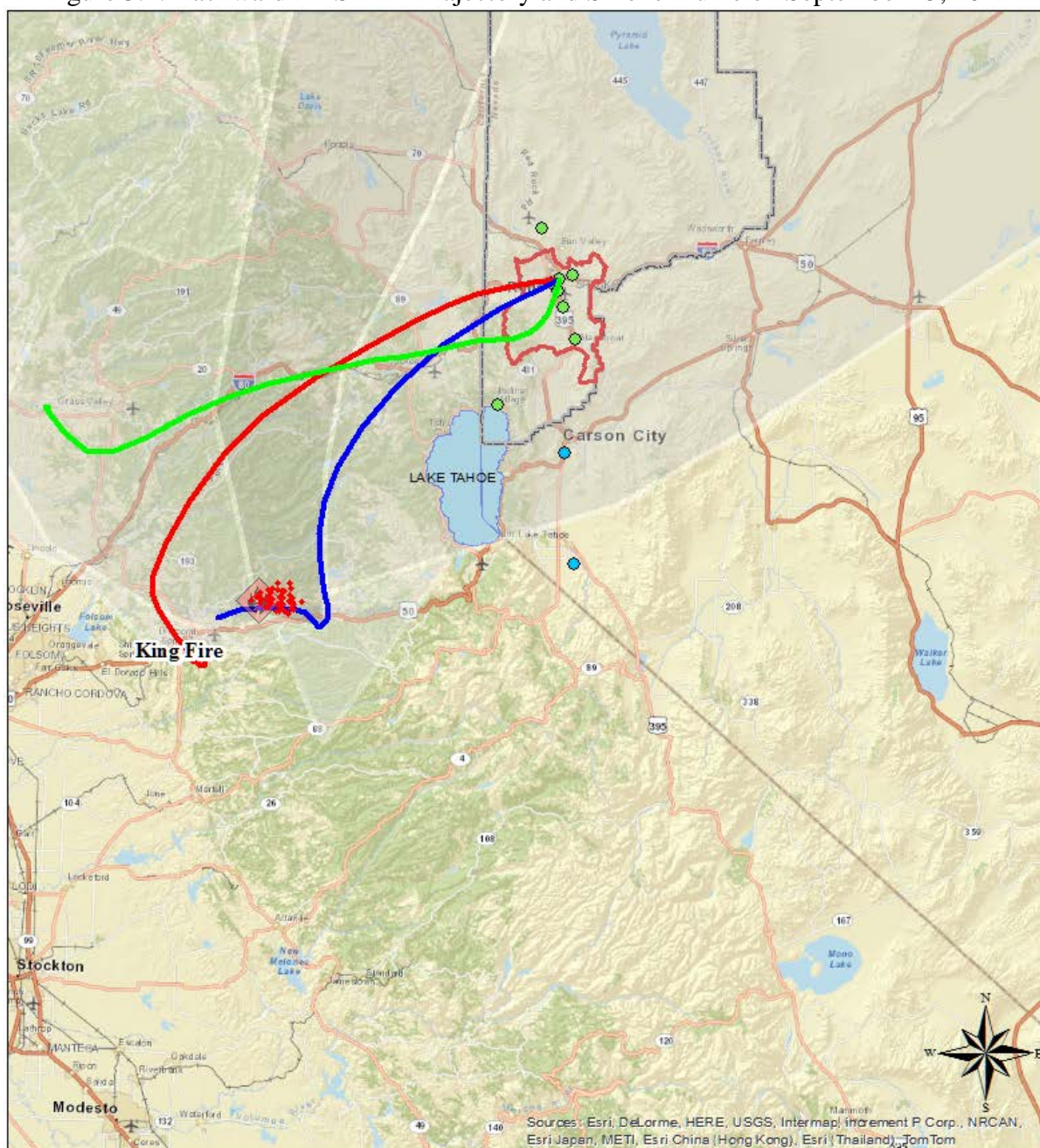
Backward Trajectory

- Hour Starting @ Midnight
- Hour Starting @ 8 am
- Hour Starting @ 4 pm

Smoke Intensity

-
-
-

Figure 3.2: Backward HYSPLIT Trajectory and Smoke Plume on September 15, 2014



September 15, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

- NDEP
- WC AQMD

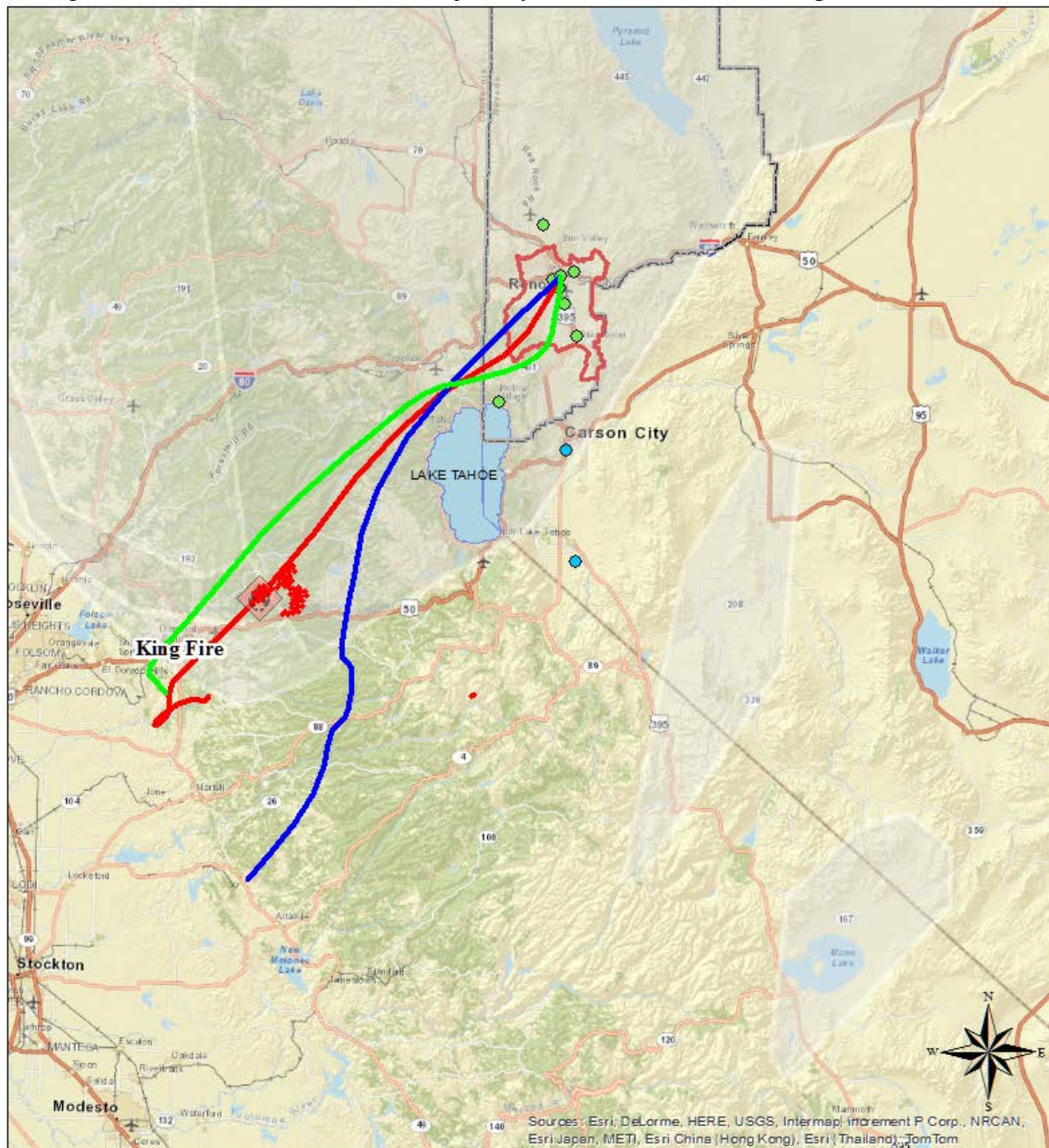
Backward Trajectory

- Hour Starting @ Midnight
- Hour Starting @ 8 am
- Hour Starting @ 4 pm

Smoke Intensity

-
-
-

Figure 3.3: Backward HYSPLIT Trajectory and Smoke Plume on September 16, 2014



September 16, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

- NDEP
- WC AQMD

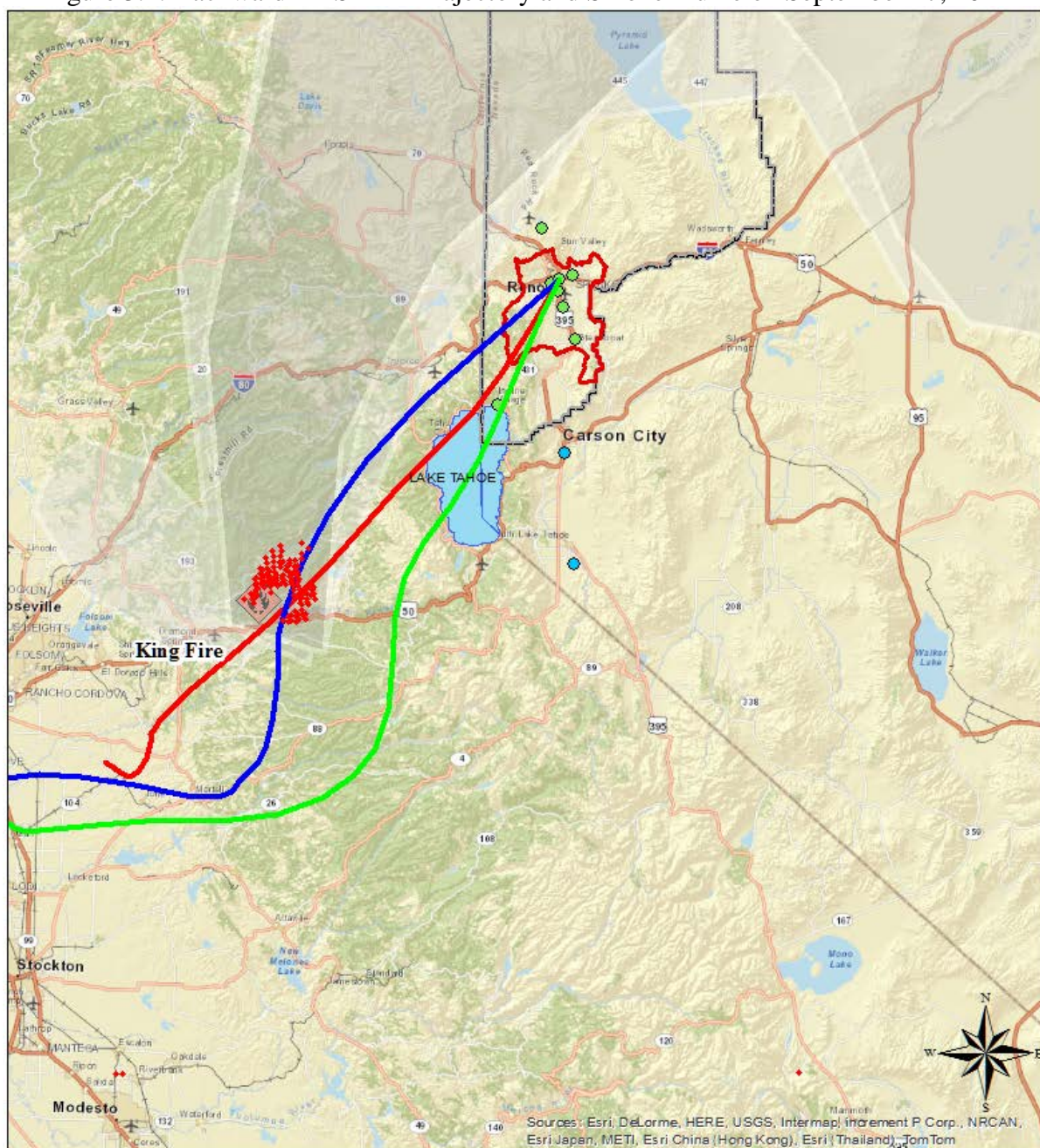
Backward Trajectory

- Hour Starting @ Midnight
- Hour Starting @ 8 am
- Hour Starting @ 4 pm

Smoke Intensity

-
-
-

Figure 3.4: Backward HYSPLIT Trajectory and Smoke Plume on September 17, 2014



September 17, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

- NDEP
- WC AQMD

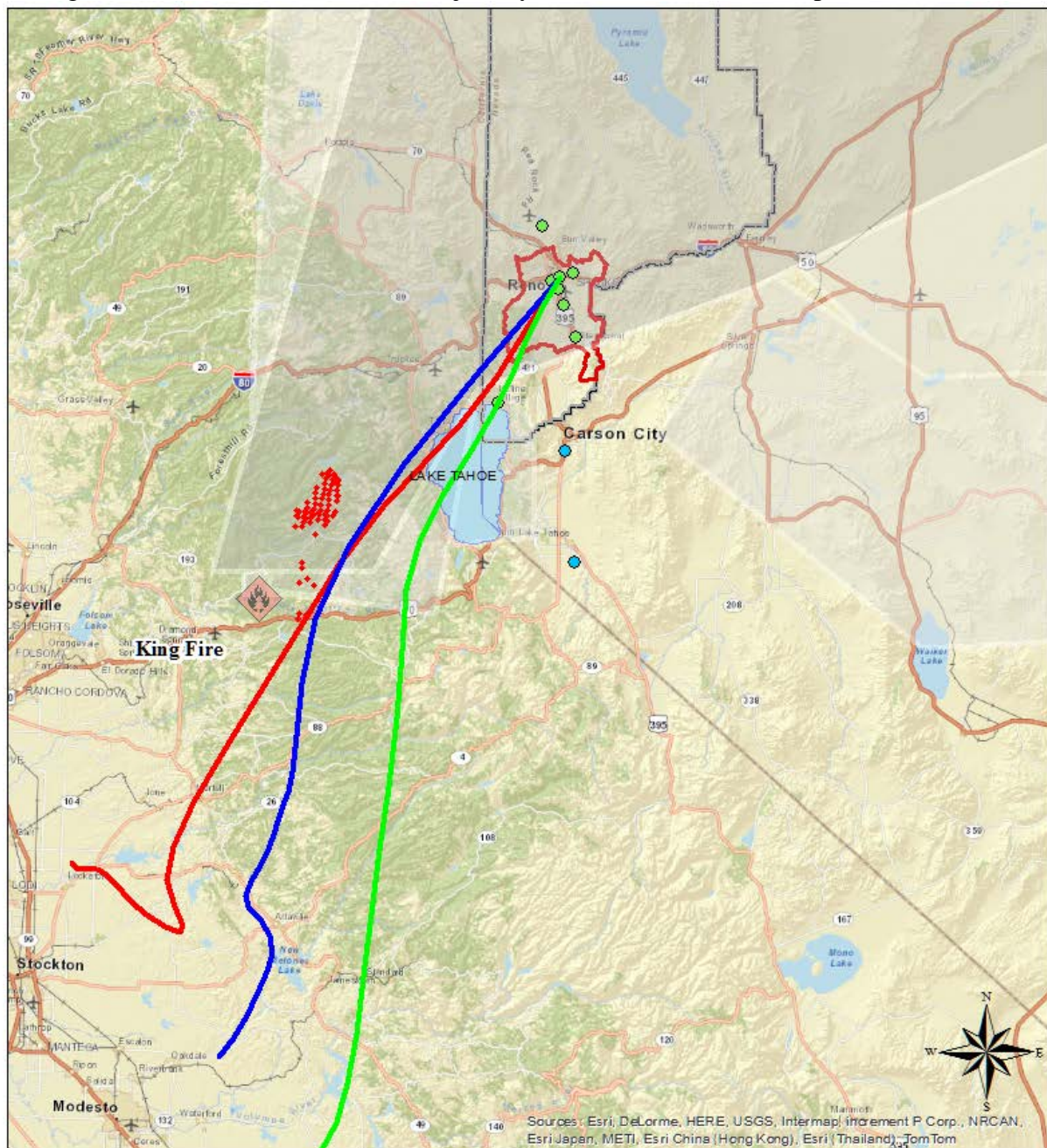
Backward Trajectory

- Hour Starting @ Midnight
- Hour Starting @ 8 am
- Hour Starting @ 4 pm

Smoke Intensity

-
-
-

Figure 3.5: Backward HYSPLIT Trajectory and Smoke Plume on September 18, 2014



September 18, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

NDEP
WC AQMD

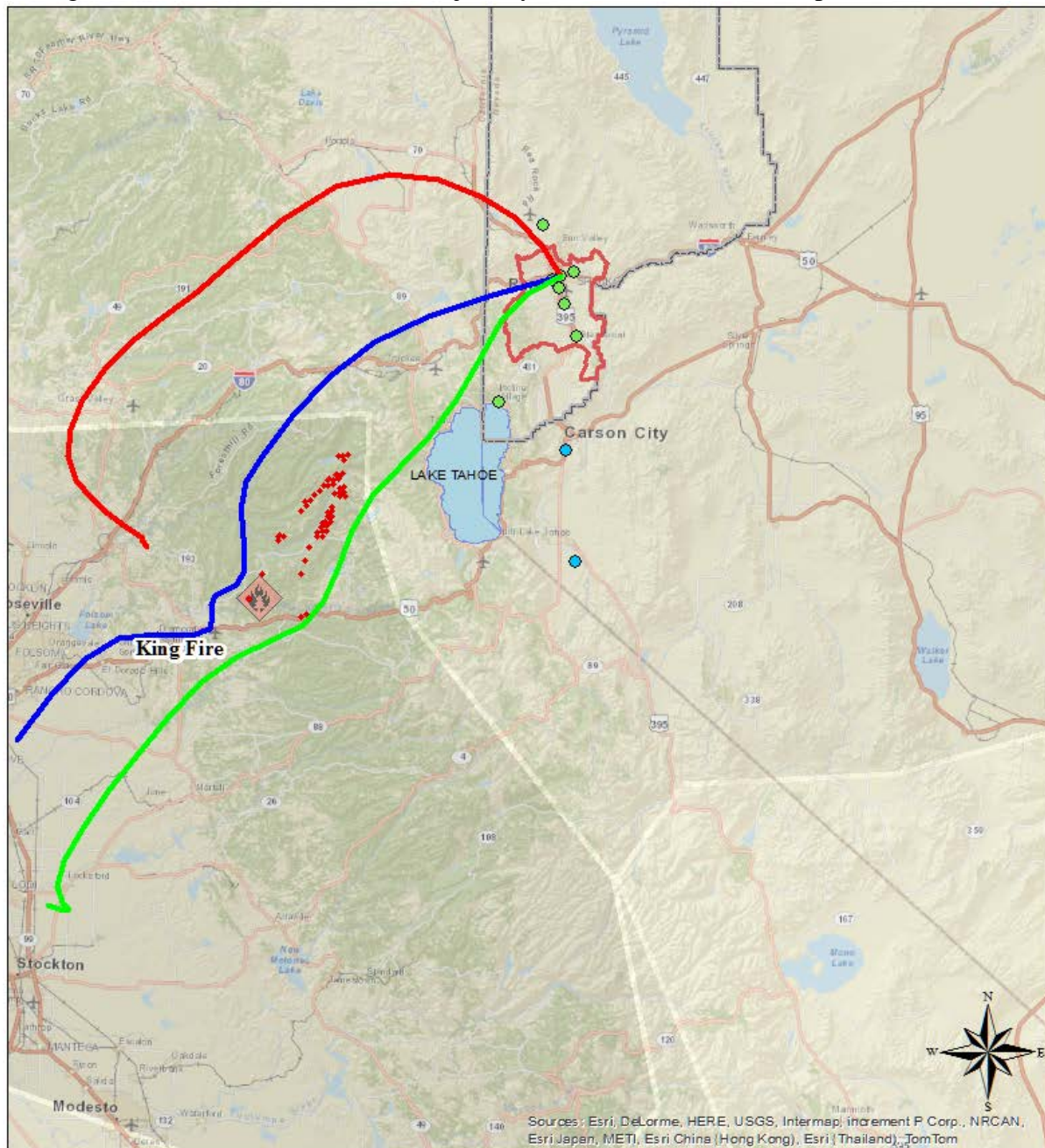
Backward Trajectory

Hour Starting @ Midnight
Hour Starting @ 8 am
Hour Starting @ 4 pm

Smoke Intensity

Smoke Intensity

Figure 3.6: Backward HYSPLIT Trajectory and Smoke Plume on September 19, 2014



September 19, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

- NDEP
- WC AQMD

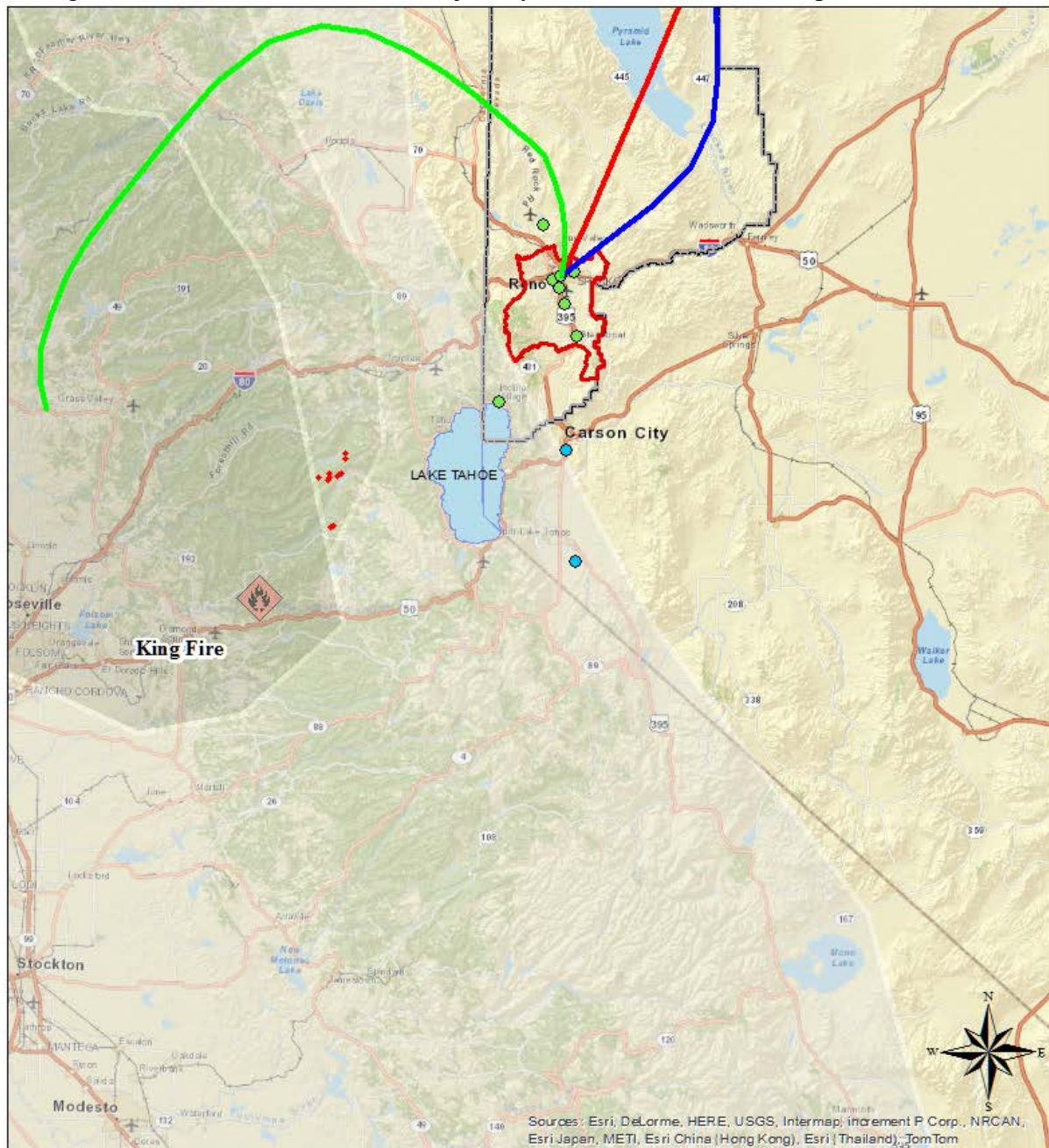
Backward Trajectory

- Hour Starting @ Midnight
- Hour Starting @ 8 am
- Hour Starting @ 4 pm

Smoke Intensity

-
-
-

Figure 3.7: Backward HYSPLIT Trajectory and Smoke Plume on September 20, 2014



September 20, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

NDEP
WC AQMD

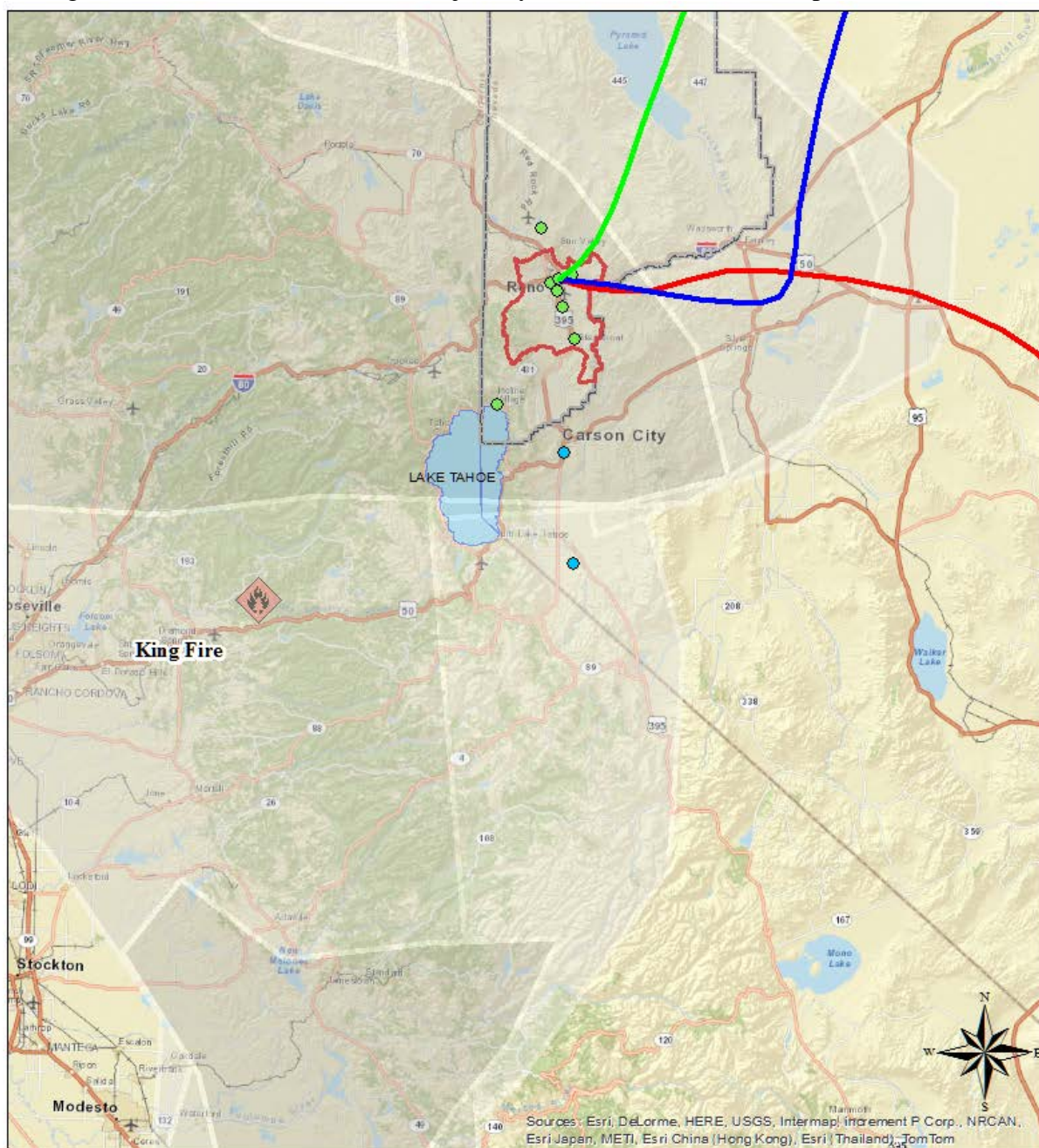
Backward Trajectory

Hour Starting @ Midnight
Hour Starting @ 8 am
Hour Starting @ 4 pm

Smoke Intensity

Smoke Intensity

Figure 3.8: Backward HYSPLIT Trajectory and Smoke Plume on September 21, 2014



September 21, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
 NDEP
 WC AQMD

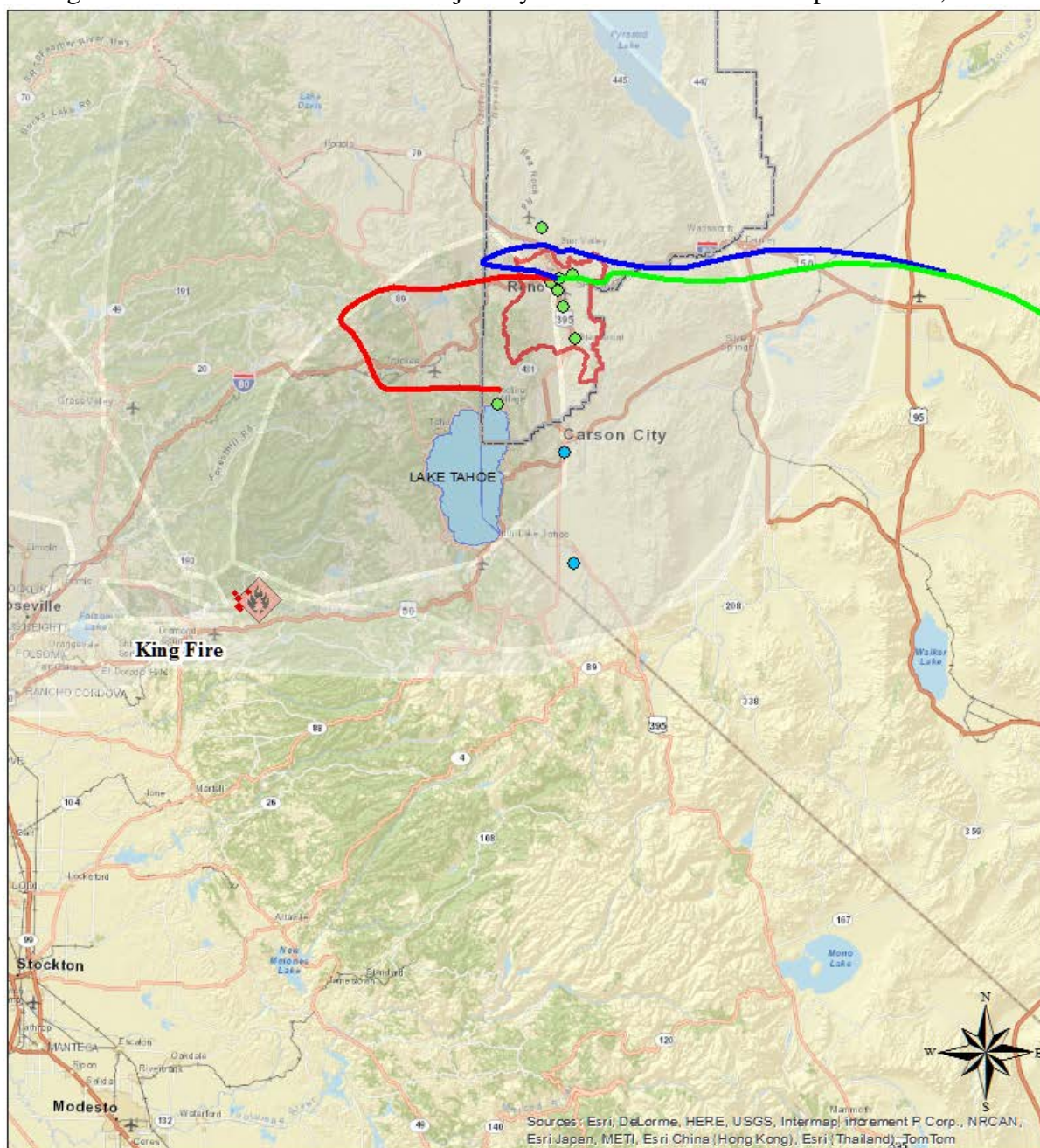
Site Jurisdiction

Backward Trajectory

Hour Starting @ Midnight
 Hour Starting @ 8 am
 Hour Starting @ 4 pm

Smoke Intensity

Figure 3.9: Backward HYSPLIT Trajectory and Smoke Plume on September 22, 2014



September 22, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

NDEP
WC AQMD

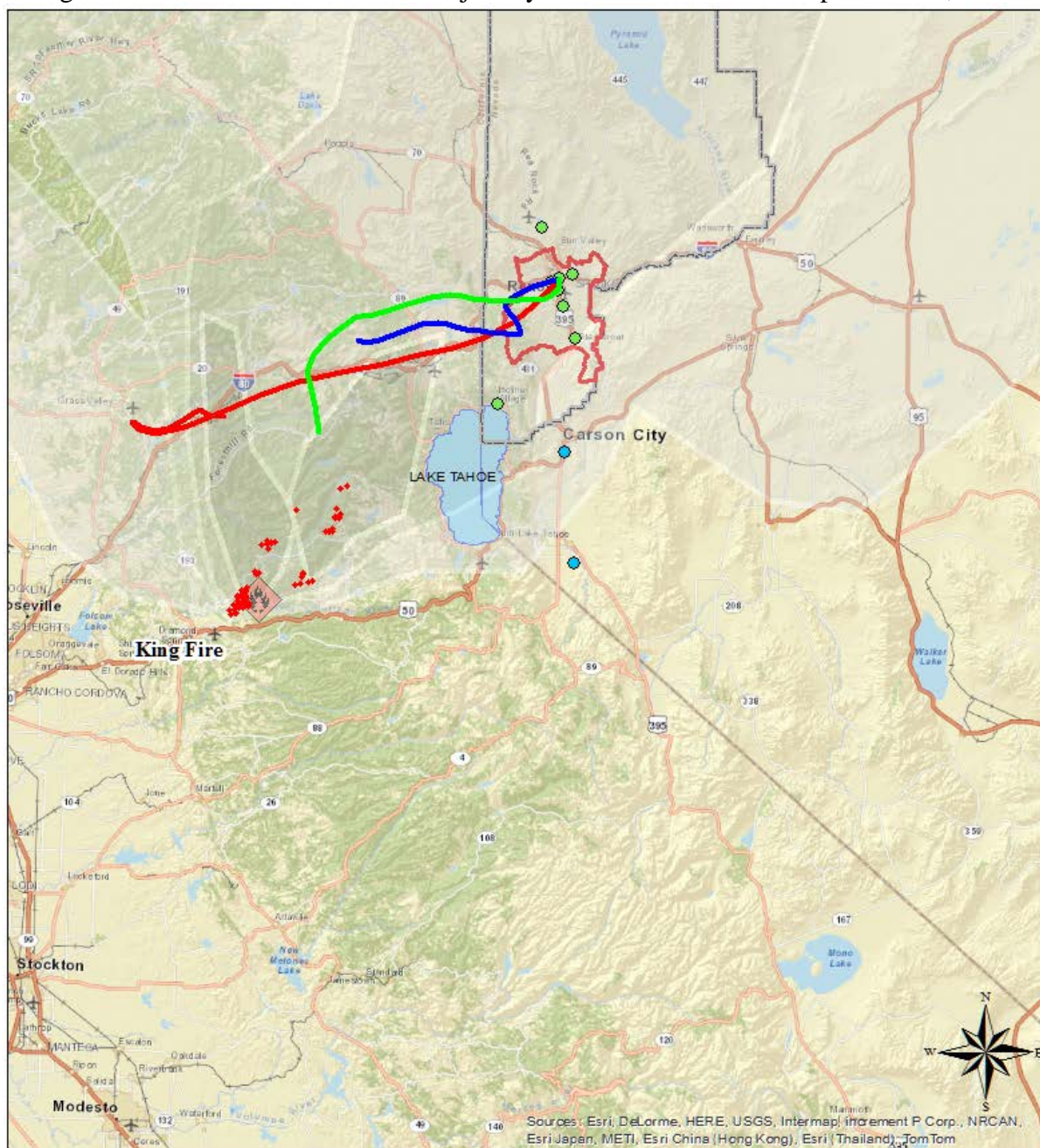
Backward Trajectory

Hour Starting @ Midnight
Hour Starting @ 8 am
Hour Starting @ 4 pm

Smoke Intensity

Smoke Intensity

Figure 3.10: Backward HYSPLIT Trajectory and Smoke Plume on September 23, 2014



September 23, 2014

0 4 8 16 24 32 Miles

Legend



Hydrographic Area 87

Site Jurisdiction



NDEP



WC AQMD

Backward Trajectory

Hour Starting @ Midnight

Hour Starting @ 8 am

Hour Starting @ 4 pm

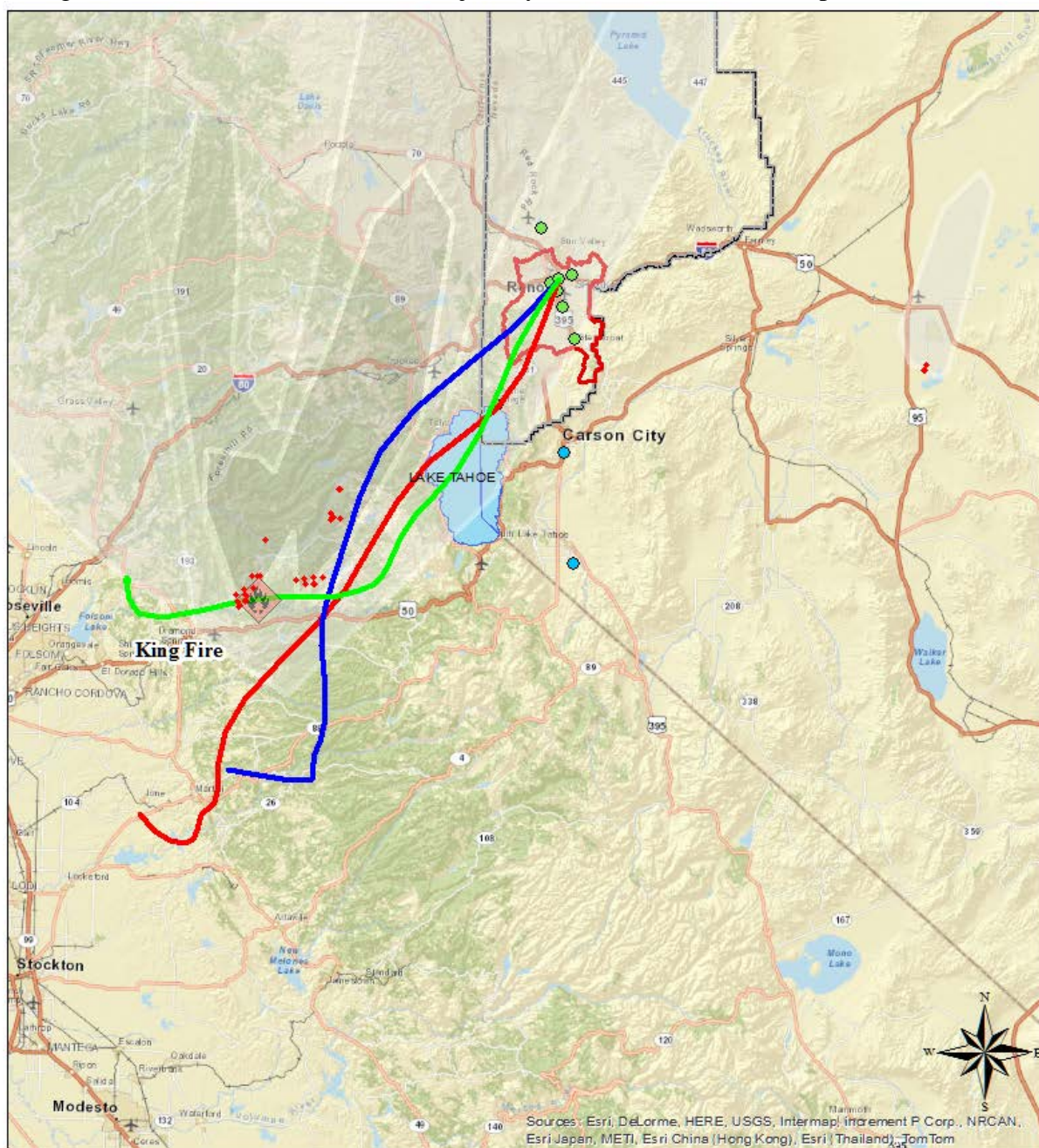
Smoke Intensity

Smoke Intensity

Smoke Intensity

Smoke Intensity

Figure 3.11: Backward HYSPLIT Trajectory and Smoke Plume on September 24, 2014



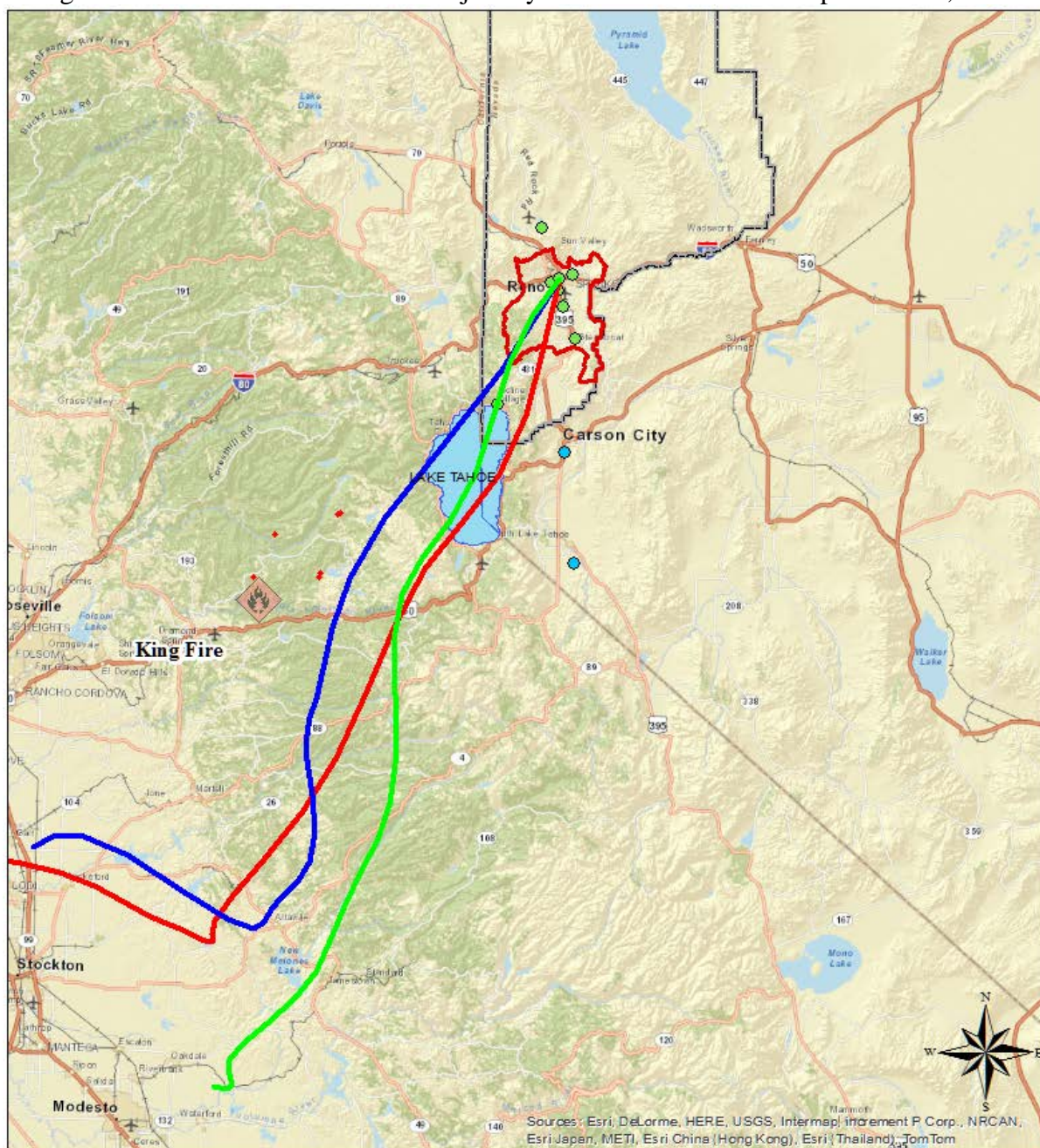
September 24, 2014

0 4 8 16 24 32 Miles

Legend

- Hydrographic Area 87
- Site Jurisdiction
 - NDEP
 - WC AQMD
- Backward Trajectory**
 - Hour Starting @ Midnight
 - Hour Starting @ 8 am
 - Hour Starting @ 4 pm
- Smoke Intensity**
 -
 -
 -

Figure 3.12: Backward HYSPLIT Trajectory and Smoke Plume on September 25, 2014



September 25, 2014

0 4 8 16 24 32 Miles

Legend

Hydrographic Area 87
Site Jurisdiction

- NDEP
- WC AQMD

Backward Trajectory

- Hour Starting @ Midnight
- Hour Starting @ 8 am
- Hour Starting @ 4 pm

Smoke Intensity

-
-
-

3.4 PM_{2.5} Speciation Data

The Reno3 site is part of the EPA's national Speciation Trends Network and has been operating a PM_{2.5} speciation sampler since 2001. The sampler is operated on the same schedule as the PM_{2.5} FRM, thereby allowing direct comparison between the two samplers for PM_{2.5} exceedance days. Elemental carbon (EC) and organic carbon (OC) are two of the many pollutants measured at the Reno3 Speciation site.

Organic carbon can be emitted directly from combustion activities or produced from secondary processes such as gas-to-particle formation. Elemental carbon, also known as light absorbing carbon or black carbon, is emitted directly from combustion sources. Increased summer background concentrations of OC in the western United States were regional by nature, likely due to the influence of biomass burning emissions. Conversely, summer background concentrations of EC due to impacts from biomass burning were higher in the urban areas.⁴

In Washoe County, the speciation results from the Reno3 site supports the findings based on the research paper cited in reference 3 above. During the King Fire, the highest OC concentrations was seven times as compared to its 3-year, September and October (2011-2013) median background concentration of 1.92 µg/m³. Likewise, EC concentrations were also elevated, by as much as three folds, during the King Fire, as compared to the 3-year median of the September and October concentrations of 0.60 µg/m³ from 2011 to 2013. Details of OC and EC background, King Fire concentrations are depicted in Figure 3.13. Table 3.1 lists the historical concentrations of OC and EC from 2011 to 2013.

⁴ J. L. Had, B.A. Schichtel, W. C. Malm, and N. H. Frank, Research Article, "Spatial and Temporal Trends in PM_{2.5} Organic and Elemental Carbon across the United States", Hindawi Publishing Corporation, Advances in Meteorology, Volume 2013, Article ID 367674, 13 pages, <http://dx.doi.org/10.1155/2013/367675>.

Figure 3.13: Elemental & Organic Carbon Concentrations during the King Fire

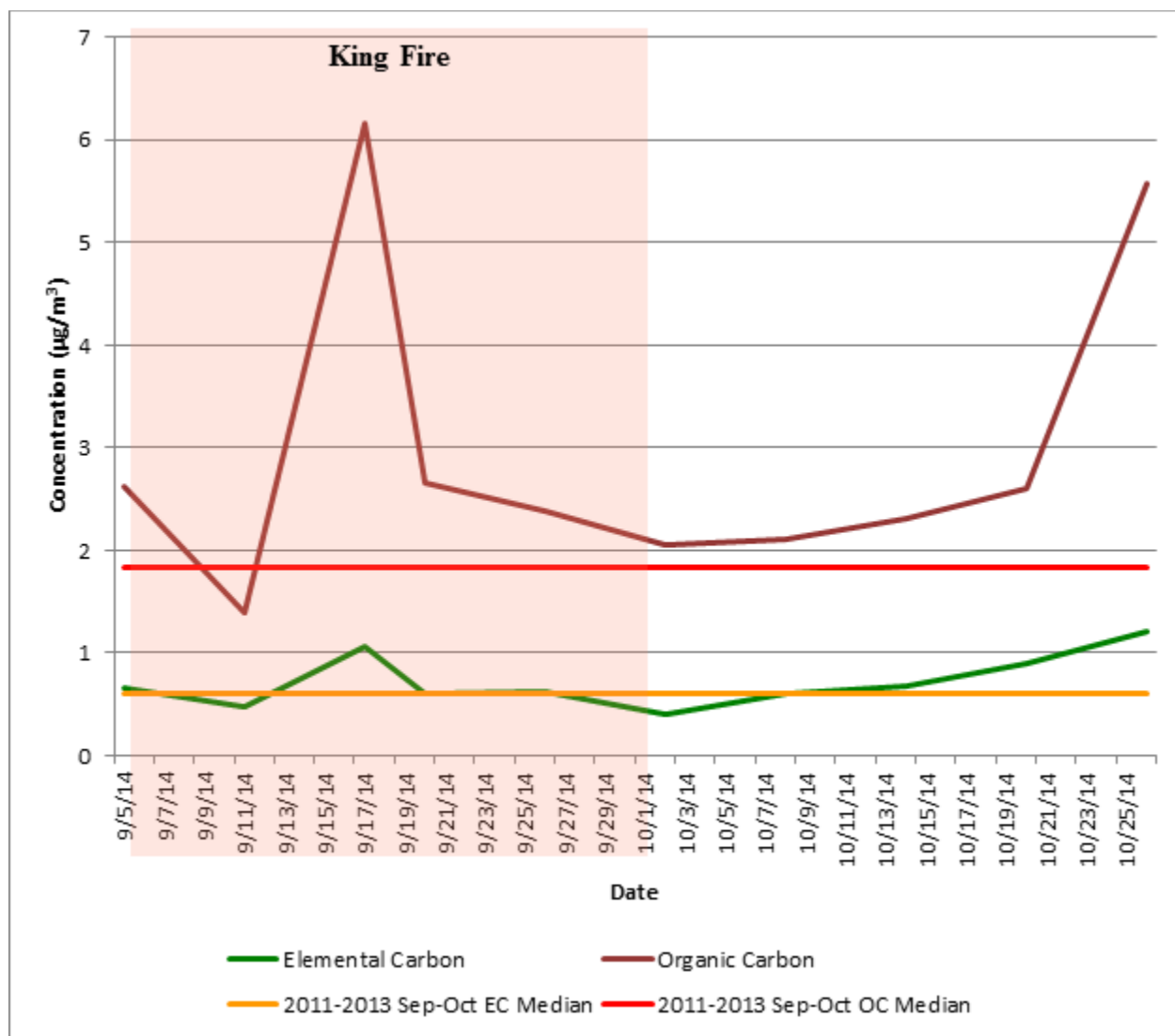


Table 3.1: 2011-2013 (Sep & Oct) Elemental & Organic Carbon Concentrations ($\mu\text{g}/\text{m}^3$)

	Highest Conc.	Lowest Conc.	Median Conc.	Average Conc.
Elemental Carbon	1.84	0.12	0.60	0.66
Organic Carbon	13.51	0	1.83	2.17

4.0 NORMAL HISTORICAL FLUCTUATIONS

4.1 Normal Historical Fluctuations

Washoe County, Reno/Sparks in particular, has historically low ambient PM_{2.5} concentrations during the summer months of August and September. Based on the previous 3-year median concentration, the 24-hour average concentrations are expected to be around 4 to 6 µg/m³ on any given September day. There are a limited amount of PM_{2.5} emission sources within the Reno/Sparks area to affect our monitors during these months to cause fluctuations. According to our 2011 Emissions Inventory, the largest sources of annual PM_{2.5} pollution within HA 87 are from non-point (87%) and on-road mobile (8%) categories. RWC comprises the majority of the non-point source category. According to our triennial 2012-2013 Residential Wood Use Survey, most of the wood combustion generally begins after October and stops by the end of February. On-road mobile category is more of a year round source of PM_{2.5}, but this category alone does not have the ability to greatly impact our PM_{2.5} monitors during the months of August and September. The only source of PM_{2.5} that causes any historical fluctuations during these months are wildfires.

4.2 PM Pollutant Concentrations and Wildfire Impacts

Beginning September 14, ambient PM_{2.5} concentrations in Washoe County were being impacted by the King Fire smoke as indicated by our three FEM PM_{2.5} monitors and one FEM PM₁₀ monitor. For the next ten days, the King Fire smoke resulted in exceptionally elevated concentrations throughout Northern Nevada and especially at our three monitoring sites. There were six exceedances of the primary 24-hour PM_{2.5} and one of the PM₁₀ standard observed during the King Fire. We expected to monitor 4 to 6 µg/m³ as indicated by our 3-year seasonal median shown in Figures 1.2, 1.3, 4.1, and 4.2, respectively. Additionally, we would have observed additional PM₁₀ exceedances had the monitors at several stations not malfunctioned due to the concentrations exceeding the instruments' specifications for flow rate and/or concentration. The smoke impact from the King Fire was also greater than the maximum 24-hour concentrations monitored in the last 3 years for 10 of the 11 total days that the smoke was impacting monitors.

Figure 4.1 September FEM PM_{2.5} 24-hour average Historical Statistics for Reno3

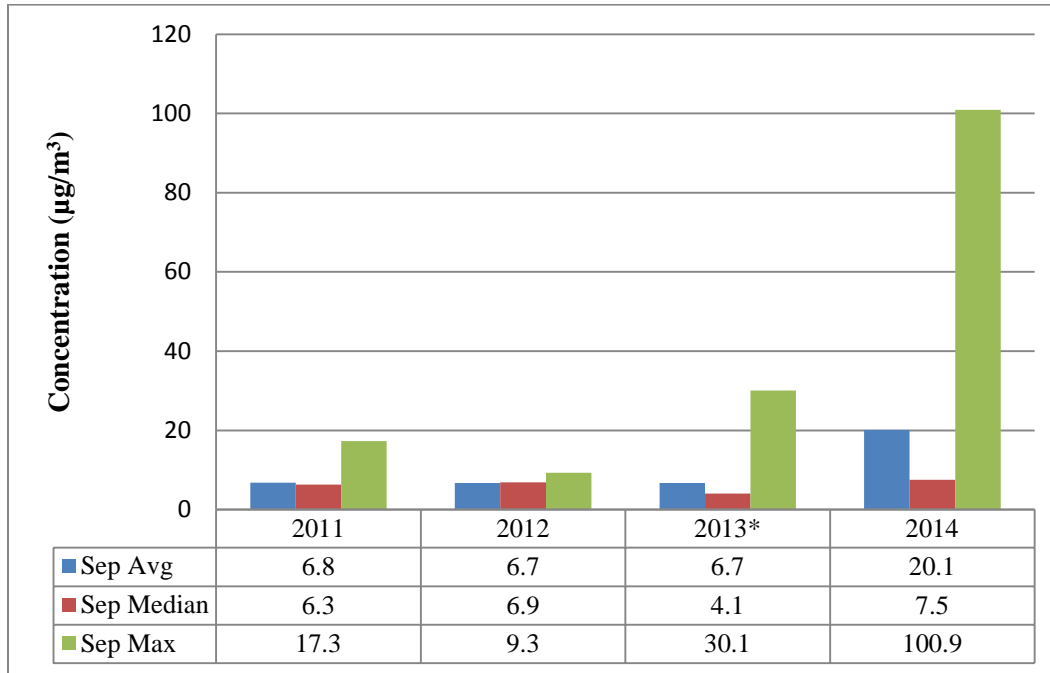
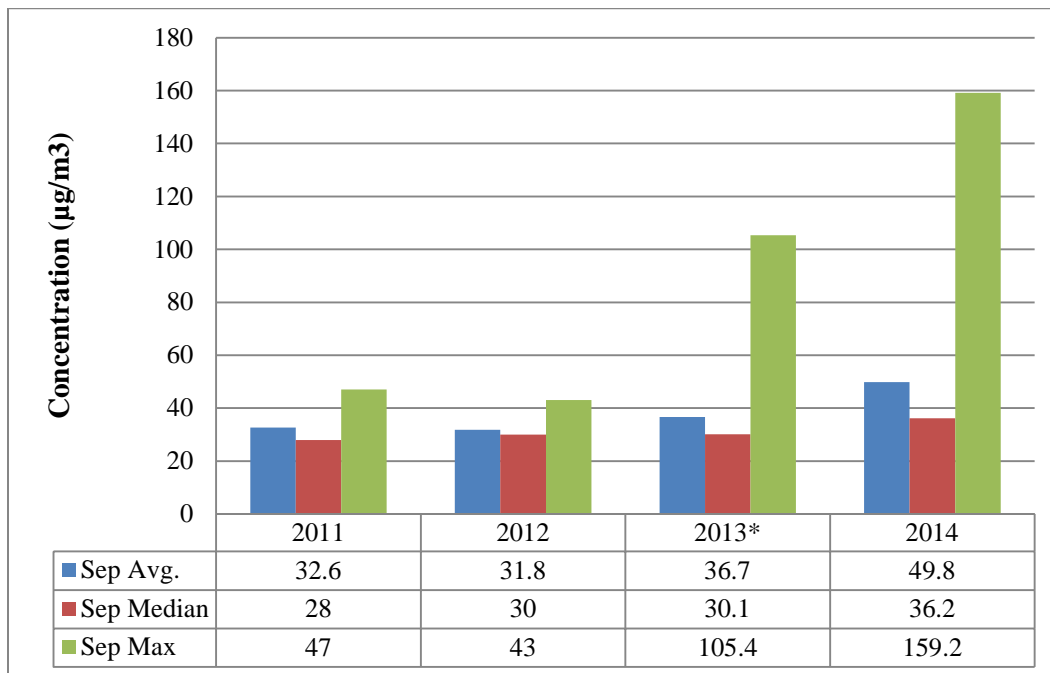


Figure 4.2 September FRM and FEM PM₁₀ 24-hour average Historical Statistics for Galletti



*Exceptional event data from the Rim Fire is included in 2013's September statistics.

4.3 PM Concentrations Relative to Historical Fluctuations

In the preamble to the EER, EPA states that the magnitude of measured concentrations on days affected by an exceptional event relative to historical, temporally adjusted air quality levels can guide the level of analysis and documentation needed to demonstrate that the event affected air quality. For example, EPA acknowledges that for extremely high concentrations relative to historical values (i.e., concentrations greater than the 95th percentile), less documentation or evidence may be required to demonstrate that the event affected air quality.

From September 14 through September 25, smoke from the King Fire resulted in historically high hourly and 24-hour average PM_{2.5} and PM₁₀ concentrations. Northern Nevada experienced well above the 3-year historical 98th percentile 24-hour midnight to midnight average for September especially for the Reno/Sparks metropolitan area. A 3-year 98th percentile concentration for September was determined to be a relevant historical average and was used to reflect the NAAQS primary 24-hour standard design value. A 3-year median was also included in Figure 1.2 to further compare what is considered normal for September to what was observed during the exceptional event. Because of limited hourly FEM PM_{2.5} data for Sparks and Galletti, FEM PM_{2.5} data at our Reno3 monitoring site was used for the 98th percentile and median for all three sites.⁵ Because of limited hourly FEM PM₁₀ at Galletti, FRM (2011 and 2012) and FEM (2013) data were used for the 98th percentile and median for the Galletti site. Six exceedances of the primary 24-hour PM_{2.5} standard and one exceedance of the primary 24-hour PM₁₀ standard occurred. The exceedances were all exceptionally higher than the 98th percentile of the PM_{2.5} and PM₁₀ data from 2011-2013 and well beyond what is considered to be normal for the Reno/Sparks metropolitan area for September.

⁵ Primary PM_{2.5} FEM monitoring began on December 16, 2010 at the Reno3 monitoring sites. PM_{2.5} FEM monitoring at the Sparks and Galletti monitoring sites began on January 1, 2012 and January 1, 2013, respectively.

5.0 “BUT FOR” ANALYSIS

Smoke from the King Fire led to increased PM_{2.5} concentrations throughout Washoe County from September 14 through September 25. It caused 6 exceedances of the primary 24-hour PM_{2.5} standard and one exceedance of the 24-hour PM₁₀ standard. There were also higher than typical PM concentrations on the non-exceedance days during the exceptional event. Based on the Reno3 historical data from 2011-2013 for PM_{2.5} and PM_{2.5} Speciation, the seasonal median during the exceptional event period is 6.2 µg/m³, and the seasonal 98th percentile is 14.9 µg/m³. For PM₁₀, Galletti historical data from 2011-2013 indicates the median for September is 30.0 µg/m³ and the 98th percentile is 70.8 µg/m³. These concentrations are then used to determine if the exceedance would not have occurred, “but-for” the event.

Table 5.1 displays the 24-hour midnight to midnight averages of FEM and FRM PM_{2.5} monitors at Reno3, Sparks, and Galletti sites and the 24-hour midnight to midnight averages of the FEM PM₁₀ monitor at the Galletti site with the average contribution of the exceptional event. The average contribution for PM_{2.5} of the exceptional event is calculated by subtracting the 3-year (2011-2013) September FEM 98th Percentile for Reno3 (14.9 µg/m³) from the low end of the range and the 3-year seasonal FEM Median for Reno3 (6.2 µg/m³) from the high end of the range from the 24-hour average by site and monitor. The average contribution for PM₁₀ of the exceptional event is calculated by subtracting the 3-year (2011-2013) September FRM/FEM 98th Percentile for Galletti (30.0 µg/m³) from the low end of the range and the 3-year September FRM/FEM median for Galletti (70.8 µg/m³) from the high end of the range from the 24-hour average for the Galletti monitor. These ranges are indicated in the Average Exceptional Event (EE) Contribution column. Negative concentrations are indicated by 0.0 µg/m³.

See sample equations below for September 18th for Reno3 PM_{2.5}:

$$EEC_{high} = A_{REN} - M_{sFEM}$$

$$EEC_{low} = A_{REN} - P_{sFEM}$$

Where:

A_{REN} = 24-hour midnight to midnight average for Reno3 on September 18, 2014

EEC_{high} = Exceptional Event Contribution (high end of the range)

EEC_{low} = Exceptional Event Contribution (low end of the range)

M_{sFEM} = 3 year September FEM Median for Reno3 (6.2 µg/m³)

P_{sFEM} = 3 year September FEM 98th Percentile for Reno3 (14.9 µg/m³)

$$EEC_{high} = 100.9 \mu\text{g}/\text{m}^3 - 6.2 \mu\text{g}/\text{m}^3 = 94.7 \mu\text{g}/\text{m}^3$$

$$EEC_{low} = 100.9 \mu\text{g}/\text{m}^3 - 14.9 \mu\text{g}/\text{m}^3 = 86.0 \mu\text{g}/\text{m}^3$$

Therefore, the average exceptional event contribution for September 18th for the FEM PM_{2.5} monitor at the Reno3 site is 86.0 – 94.7 µg/m³.

See sample equations below for September 18th for Galletti PM₁₀:

$$EEC_{high} = A_{GAL} - M_{sFRM/FEM}$$

$$EEC_{low} = A_{GAL} - P_{sFRM/FEM}$$

Where:

A_{GAL} = 24-hour midnight to midnight average for Galletti on September 18, 2014

EEC_{high} = Exceptional Event Contribution (high end of the range)

EEC_{low} = Exceptional Event Contribution (low end of the range)

$M_{sFRM/FEM}$ = 3 year September FRM/FEM Median for Galletti (30.0 $\mu\text{g}/\text{m}^3$)

$P_{sFRM/FEM}$ = 3 year September FRM/FEM 98th Percentile for Galletti (70.8 $\mu\text{g}/\text{m}^3$)

$$EEC_{high} = 159.2 \mu\text{g}/\text{m}^3 - 30.0 \mu\text{g}/\text{m}^3 = 129.2 \mu\text{g}/\text{m}^3$$

$$EEC_{low} = 159.2 \mu\text{g}/\text{m}^3 - 70.8 \mu\text{g}/\text{m}^3 = 88.4 \mu\text{g}/\text{m}^3$$

Therefore, the average exceptional event contribution for September 18th for the FEM PM₁₀ monitor at the Galletti site is 88.4 – 129.2 $\mu\text{g}/\text{m}^3$.

Table 5.1 Estimate of PM_{2.5} and PM₁₀ Concentration Contribution from Event

Date	Average Exceptional Event Contribution			
	PM _{2.5} Concentrations ($\mu\text{g}/\text{m}^3$)			PM ₁₀ Concentrations ($\mu\text{g}/\text{m}^3$)
	Reno3 FEM / FRM	Sparks FEM	Galletti FEM	Galletti FEM
09/14/2014	0.0 – 5.6	0.0 – 4.2	0.0 – 6.2	0.0 – 6.1
FRM	0.0 – 4.9			
09/15/2014*	22.9 – 31.6	22.4 – 31.1	24.8 – 33.5	10.3 – 51.1
09/16/2014*	24.8 – 33.5	26.4 – 35.1	31.5 – 40.2	19.2 – 60.0
09/17/2014	17.9 – 26.6	12.1 – 20.8	13.6 – 22.3	21.4 – 62.2
FRM	15.6 – 24.3			
09/18/2014**	86.0 – 94.7	83.1 – 91.8	85.3 – 94.0	88.4 – 129.2
09/19/2014	12.5 – 21.2	0.0 – 4.9	2.8 – 11.5	0.0 – 11.9
09/20/2014	0.0 – 3.6	0.0 – 0.0	0.0 – 0.0	0.0 – 5.6
FRM	0.0 – 2.0			
09/21/2014	11.7 – 20.4	5.8 – 14.5	5.9 – 14.6	0.0 – 20.7
09/22/2014*	47.1 – 55.8	39.6 – 48.3	42.8 – 51.5	27.4 – 68.2
09/23/2014*	78.1 – 86.8	68.6 – 77.3	72.5 – 81.2	64.2 – 105.0
FRM	72.6 – 81.3			
09/24/2014*	22.0 – 30.7	30.8 – 39.5	32.1 – 40.8	33.5 – 74.3
09/25/2014	0.0 – 0.9	0.0 – 0.0	0.0 – 0.0	0.0 – 19.3

*Exceedance day, a day in which at least 1 of the sites recorded 1 exceedance of the primary 24-hour PM_{2.5} NAAQS.

**Exceedance day, a day in which at least 1 of the sites recorded 1 exceedance of the primary 24-hour PM_{2.5} and PM₁₀ NAAQS.

6.0 PUBLIC OUTREACH AND MEDIA COVERAGE

6.1 Mitigation of Exceptional Events

The AQMD met all of the requirements for mitigating the impacts of this catastrophic wildfire on the public. The public mitigation requirements specified in 40 CFR 51.930 include the following:

A State requesting to exclude air quality data due to exceptional events must take appropriate and reasonable actions to protect public health from exceedances or violations of the national ambient air quality standards. At a minimum, the State must:

1. Provide for prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard;
2. Provide for public education concerning actions that individuals may take to reduce exposures to unhealthy levels of air quality during and following an exceptional event; and
3. Provide for the implementation of appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by exceptional events.

6.2 Public Notification

The AQMD provided prompt notifications throughout the exceptional event to the public and local media. Air Quality Index (AQI) Forecasts and Air Alerts were distributed daily via EnviroFlash. Air quality information was also available from the AQMD website (OurCleanAir.com), social media (Facebook, Twitter, YouTube), and Air Quality Hotline [(775) 785-4110]. Examples of these reports are in Appendix D.

AQMD created Facebook and Twitter pages in July 2013 and started YouTube in December 2013. As a part of improving our outreach and educational component of our mission statement, we created these pages to serve as a direct outlet to the public and other entities for the daily air quality index update, winter time burn codes, and emergency situations.

Between September 1 and 13, 2014 before the King Fire smoke first impacted the Reno/Sparks area, we reached approximately 361 on Twitter, and on 182 Facebook per day. From September 14 to September 25 we reached 1,717 people on Twitter and 1,422 people on Facebook per day. Our maximum daily reach for the King Fire on Twitter and Facebook was 3,532 and 5,831 people, respectively. These basic view totals do not include what our local media and government partners, who follow us on both social media websites, posted on their own pages with our content. The hashtag #KingFire was a regionally trending topic on social media. The time lapse on our YouTube channel from the National Weather Service (NWS) on September 15th was viewed 610 times (<https://youtu.be/qoWHqrkmWtQ>). Below is a post and auto-tweet from AQMD's two social media accounts to alert the public of unhealthy air quality conditions. An example of the NWS social media notification is in Appendix E.



National Weather Service Reno
Thu Sep 18, 2014 01:39 PM PDT



Washoe County Health District: Air Quality Management Division
Published by Brendan Schnieder [?]
September 18, 2014 · 🌐

#KingFire smoke is back after a brief break. Take precautions now by staying indoors with the windows closed and AC on and reduce activity. Please note: AirNow.gov AQIs take up to 90 minutes to update. Rapid changes like this are quicker than the AQI can update. Please SHARE this post.

 Tag Photo
  Add Location
  Edit

Like · Comment · Share

👍 Yann Ling-Barnes and Stephanie Paterson like this.


🔄 14 shares













Temperature: 75 F RH: 28 % Wind: West at 8 MPH Gusting to 18



Washoe County AQMD
@WashoeCountyAQ

Current Air Quality for Reno/Sparks, NV: At 8 PM PDT Particle Pollution (2.5 microns) reached Very Unhealthy













RETWEETS

6

FAVORITE

1

8:50 PM - 23 Sep 2014

Air Quality Reports for the King Fire were issued by the Klamath National Forest, the U.S. Forest Service Region 5 throughout the duration of the exceptional event. An example of these reports are included in Appendix F and G.

6.3 Public Education and Health Protection

Throughout the duration of the event, the AQMD coordinated with the Washoe County School District (WCSD) and the Nevada Interscholastic Activities Association (NIAA) to provide them with the most up-to-date information on current air quality during the fires in order to make the best decisions regarding outdoor activities. AQMD created a recommendation table (See Appendix H) for schools and child care facilities based on visibility. Providing both the WCSD and the NIAA with these tools allowed them to make the best decisions based on smoke impacts throughout Washoe County.

Additionally, to provide the best education and protection to the public, the AQMD encouraged the public to use AirNow for hourly air quality updates. This was accomplished by adding a link to AirNow on the AQMD's website OurCleanAir.com. Education regarding the potential 90 minute delay between receiving data from the monitoring instruments to the time it is available on AirNow was conveyed to the local media to enable them to better explain and inform the general public during their broadcast.

6.4 Measures to Protect Public Health

The AQMD provided appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by the exceptional event by providing health advisories on a daily basis based on the AQI range. See Appendix E for an example of the health advisory in the AQI update.

Additionally, the AQMD participated in daily Fire Weather Calls. The Reno NWS conducted Fire Weather Calls at 0945 on a regular basis during the exceptional event. The AQMD participated in these calls as well as the Daily Smoke Coordination Conference Call conducted by the California Air Resources Board at 1300 and the 1400 call conducted by the U.S. Forest Service providing updates on the fire as well as Air District Updates. Participating in these weather, smoke and fire conference calls provided the AQMD with additional information to better notify the public of the potential smoke impacts to our area during the exceptional event.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This demonstration package makes a compelling case that the PM_{2.5} and PM₁₀ exceedances between September 14 through September 25, 2014 and unusually high concentrations, were due to the direct impacts of the King Fire. The report also documents and provides analysis to demonstrate that the King Fire meets the criteria for an exceptional event and will allow for EPA to exclude the PM_{2.5} data for all days from September 14 through September 25, 2014 and PM₁₀ data for September 18, 2014.

The fire was not reasonably controllable or preventable due to the event being caused by human activities. Additionally, there is a clear and causal relationship between the smoke plumes from the fire and the measured exceedances in Washoe County. This relationship is demonstrated by HYSPLIT Trajectories in Section 3 and Appendix C and show a clear relationship between the smoke plumes and the PM_{2.5} concentrations at the three monitoring sites.

Normal PM_{2.5} concentrations in Washoe County in September are typically 6.2 µg/m³ and normal PM₁₀ concentrations are 30.0 µg/m³ based on historical FRM and FEM data. PM_{2.5} and PM₁₀ concentrations at all three monitoring sites in Washoe County were at normal levels before and after the event (Figures 1.2 and 1.3). During the event, 24-hour concentrations regularly exceeded the historic seasonal 98th percentile (14.9 µg/m³) with six of those days exceeding the primary 24-hour PM_{2.5} NAAQS and one day exceeding the primary 24-hour PM₁₀ NAAQS. There would have been no PM_{2.5} or PM₁₀ exceedances or unusually high concentrations at the three monitoring sites but for the smoke impacts from the event.

This demonstration package also contains information that Washoe County met the public mitigation requirements specified in 40 CFR 51.930 by providing public notification, public education and health education, and provided measures to protect public health.

Based on the information contained in this demonstration, EPA should be able to clearly identify the King Fire as an exceptional event in accordance with the EER and exclude the requested PM_{2.5} and PM₁₀ data from September 14 through September 25, 2014.

APPENDIX A

EPA 2014 ANNUAL NETWORK PLAN APPROVAL LETTER



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 29 2014

Mr. Daniel K. Inouye
Chief, Monitoring and Planning Branch
Air Quality Management Division
Washoe County Health District
P.O. Box 11130
Reno, Nevada 89520-0027

Dear Mr. Inouye:

Thank you for your submission of the Washoe County Health District's 2014 Ambient Air Monitoring Network Plan in July 2014. We have reviewed the submitted document based on the requirements set forth under 40 CFR 58. Based on the information provided in the plan, U.S. Environmental Protection Agency (EPA) approves all portions of the network plan except those specifically identified below.

Please note that we cannot approve portions of the annual network plan for which the information in the plan is insufficient to judge whether the requirement has been met, or for which the information, as described, does not meet the requirements as specified in 40 CFR 58.10 and the associated appendices. EPA Region 9 also cannot approve portions of the plan for which the EPA Administrator has not delegated approval authority to the regional offices. Accordingly, the first enclosure (*A. Annual Monitoring Network Plan Items where EPA is Not Taking Action*) provides a listing of specific items of your agency's annual monitoring network plan where EPA is not taking action. The second enclosure (*B. Additional Items Requiring Attention*) is a listing of additional items in the plan that EPA wishes to bring to your agency's attention.

The third enclosure (*C. Annual Monitoring Network Plan Checklist*) is the checklist EPA used to review your plan for overall items that are required to be included in the annual network plan along with our assessment of whether the plan submitted by your agency addresses those requirements.

The first two enclosures highlight a subset of the more extensive list of items reviewed in the third enclosure. All comments conveyed via this letter (and enclosures) should be addressed (through corrections within the plan, additional information being included, or discussion) in next year's annual monitoring network plan.

A. Annual Monitoring Network Plan Items where EPA is Not Taking Action

We are not acting on the portions of annual network plans where either EPA Region 9 lacks the authority to approve specific items of the plan, or EPA has determined that a requirement is either not met or information in the plan is insufficient to judge whether the requirement has been met.

- Per 40 CFR 58.11(c), NCore and STN network design and changes are subject to approval of the EPA Administrator. Therefore, we are not acting on these items.
- System modifications (e.g., site closures or moves) are subject to approval per 40 CFR 58.14(c). Information provided in the plan was insufficient for EPA to approve the system modifications listed in the plan per the applicable requirement. Therefore, we are not acting on the following items as part of this year's annual network plan (see Checklist Row 3):
 - Relocation of the Galletti site (AQS ID 32-031-0022)
- EPA identified items in your agency's annual monitoring network plan where a requirement was not being met or information in the plan was insufficient to judge whether the requirement was being met based on 40 CFR 58.10 and the associated appendices. Therefore, we are not acting on the following items:

Item	Checklist Row	Issue
Distance from supporting structure	73	Not meeting requirement
Distance from trees	76	Insufficient information to judge
Minimum number of monitors for non-NCore Pb	38	Insufficient information to judge
Scale of representativeness for each monitor	65	Insufficient information to judge in one instance

Additional information for each of these items may be found for the row listed in column 2, in the third enclosure (*C. Annual Monitoring Network Plan Checklist*).

- [Item 60] Please confirm whether the POC of the PM₁₀ monitor at the Toll Road site is 22, or if that is a typo.

C. ANNUAL MONITORING NETWORK PLAN CHECKLIST

(Updated March 11, 2014)

Year: 2014

Agency: Washoe County Health District Air Quality Management Division (AQMD)

40 CFR 58.10(a)(1) requires that each Annual Network Plan (ANP) include information regarding the following types of monitors: SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations.

40 CFR 58.10(a)(1) further directs that, "The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable." On this basis, review of the ANPs is based on the requirements listed in 58.10 along with those in Appendices A, C, D, and E.

EPA Region 9 will not take action to approve or disapprove any item for which Part 58 grants approval authority to the Administrator rather than the Regional Administrators, but we will do a check to see if the required information is included and correct. The items requiring approval by the Administrator are: PAMS, NCore, and Speciation (STN/CSN).

Please note that this checklist summarizes many of the requirements of 40 CFR Part 58, but does not substitute for those requirements, nor do its contents provide a binding determination of compliance with those requirements. The checklist is subject to revision in the future and we welcome comments on its contents and structure.

Key:

White = meets the requirement.

Yellow = requirement is not met, or information is insufficient to make a determination. Action requested in next year's plan or outside the ANP process. (items listed in Enclosure A)

Green = item requires attention in order to improve next year's plan (items listed in Enclosure B)

	ANP requirement	Citation within 40 CFR 58	Was the information submitted? ¹ If yes, page #s. Flag if incorrect ² ?	Does the information provided ³ meet the requirement? ⁴	Notes
		App A, 1.3 and 5.1.1			
11.	Annual data certification submitted	58.15 App. A 1.3	Yes, page 9	Yes	
12.	SPMs operating an FRM/FEM/ARM that meet Appendix E also meet either Appendix A or an approved alternative.	58.11 (a) (2)	NA	NA	No SPMs
13.	SPMs operating FRM/FEM/ARM monitors for over 24 months are listed as comparable to the NAAQS or the agency provided documentation that requirements from Appendices A, C, or E were not met. ⁶	58.20(c)	NA	NA	No SPMs
14.	For agencies that share monitoring responsibilities in an MSA/CSA: this agency meets full monitoring requirements or an agreement between the affected agencies and the EPA Regional Administrator is in place	App D 2(e)	NA	NA	
GENERAL PARTICULATE MONITORING REQUIREMENTS (PM₁₀, PM_{2.5}, Pb-TSP, Pb-PM₁₀)					
15.	Designation of a primary monitor if there is more than one monitor for a pollutant at a site.	Need to determine collocation	Yes, pages 5, 27-28	Yes	
16.	Distance between collocated monitors (Note: waiver request or the date of previous waiver approval must be included if the distance deviates from requirement.)	App. A 3.2.5.6 and 3.2.6.3	Yes, page 28	Yes	
PM_{2.5} –SPECIFIC MONITORING REQUIREMENTS					
17.	Document how states and local agencies provide for the review of changes to a PM _{2.5} monitoring network that impact the location of a violating PM _{2.5} monitor.	58.10 (c)	Yes, pages 8-9	Yes	

⁶ This requirement only applies to monitors that are eligible for comparison to the NAAQS per 40 CFR §§58.11(e) and 58.30.

	ANP requirement	Citation within 40 CFR 58	Was the information submitted? ¹ If yes, page #s. Flag if incorrect ² ?	Does the information provided ³ meet the requirement? ⁴	Notes
					Although information can be found in this year's ANP related to this requirement, it would be easier to know that this requirement is met if the plan specifically discussed the 40 CFR 58 Appendix A 3.2.5 requirement in terms of how many primary monitors of each type/method code there are. Please consider adding this to next year's plan.
22.	PM _{2.5} Chemical Speciation requirements for official STN sites	App D 4.7.4	Yes, page 27	Yes	
23.	Identification of sites suitable and sites not suitable for comparison to the annual PM _{2.5} NAAQS as described in Part 58.30	58.10 (b)(7)	Yes, Detailed site information	Yes	The PM _{2.5} concentrations from the speciation monitors are not considered comparable to the NAAQS. Please correct this in your next plan.
24.	Required PM _{2.5} sites represent area-wide air quality	App D 4.7.1(b)	Yes, Detailed site information See note	Yes	Please clarify in your next year's plan if the Galletti site represents area-wide air quality, even though it is middle scale.
25.	For PM _{2.5} , at least one site at neighborhood or larger scale in an area of expected maximum concentration	App D 4.7.1(b)(1)	Yes	Yes	Sparks is listed as the maximum concentration PM _{2.5} site
26.	If additional SLAMS PM _{2.5} is required, there is a site in an area of poor air quality	App D 4.7.1(b)(2)	NA	NA	Although only one PM _{2.5} site is required, Washoe County AQMD has additional SLAMS located in other areas of PM _{2.5} concern
27.	States must have at least one PM _{2.5} regional background and one PM _{2.5} regional transport site.	App D 4.7.3	NA	NA	This requirement is met by other agencies in the state.
28.	Sampling schedule for PM _{2.5} - applies to year-round and seasonal sampling schedules (note: date of waiver approval must be included if the sampling season deviates from requirement)	58.10 (b)(4) 58.12(d) App D 4.7 EPA flowchart	Yes, Detailed site information	Yes	
29.	Frequency of flow rate verification for manual PM _{2.5} monitors audit	App A 3.3.2	Yes, Detailed site information	Yes	
30.	Frequency of flow rate verification for automated PM _{2.5} monitors audit	App A 3.2.3	Yes, Detailed site information	Yes	
31.	Dates of last two semi-annual flow rate audits for PM _{2.5} monitors	App A, 3.2.4 and 3.3.3	Yes, Detailed site information	Yes	

PM₁₀ –SPECIFIC MONITORING REQUIREMENTS

	ANP requirement	Citation within 40 CFR 58	Was the information submitted?¹ If yes, page #s. Flag if incorrect²?	Does the information provided³ meet the requirement?⁴	Notes
42.	Designation of any Pb monitors as either source-oriented or non-source-oriented	58.10 (b)(9)	NA	NA	Washoe does not monitor for Pb at their NCore site. No Pb is required at the NCore site since CBSA population is < 500,000.
43.	Sampling schedule for Pb	58.10 (b)(4) 58.12(b) App D 4.5	NA	NA	
44.	Frequency of one-point flow rate verification for Pb monitors audit	App A 3.3.4.1	NA	NA	
45.	Dates of last two semi-annual flow rate audits for Pb monitors	App A 3.3.4.1	NA	NA	

GENERAL GASEOUS MONITORING REQUIREMENTS

46.	Frequency of one-point QC check (gaseous)	App. A 3.2.1	Yes, Detailed site information	Yes	
47.	Date of last Annual Performance Evaluation (gaseous)	App. A 3.2.2	Yes, Detailed site information	Yes	

O₃ –SPECIFIC MONITORING REQUIREMENTS

48.	Minimum # of monitors for O ₃ [Note: should be supported by MSA ID, MSA population, DV, # monitors, and # required monitors] (see footnote) ⁷	App D, 4.1(a) and Table D-2	Yes, page 4	Yes	
49.	Identification of maximum concentration O ₃ monitor(s)	App D 4.1 (b)	Yes, Detailed site information	Yes	Sparks is listed as the maximum concentration site for O ₃ .
50.	Sampling season for O ₃ (Note: date of waiver approval must be included if the sampling season deviates from requirement)	58.10 (b)(4) App D, 4.1(i)	Yes, Detailed site information	Yes	

NO₂ –SPECIFIC MONITORING REQUIREMENTS

51.	Minimum monitoring requirement for single near-road NO ₂ monitor (in CBSA ≥ 1 million) by 1/1/2014	App D 4.3.2	Yes, Detailed site information	Yes	None required
52.	Minimum monitoring requirements for area-wide NO ₂ monitor in location of expected highest NO ₂	App D 4.3.3	Yes, Detailed site information	Yes	None required

⁷ Only monitors considered to be required SLAMs are eligible to be counted towards meeting minimum monitoring requirements. In addition, ozone monitors that do not meet traffic count/distance requirements to be neighborhood scale (40 CFR 58 Appendix E, Table E-1) cannot be counted towards minimum monitoring requirements.

	ANP requirement	Citation within 40 CFR 58	Was the information submitted?¹ If yes, page #s. Flag if incorrect²?	Does the information provided³ meet the requirement?⁴	Notes
57.	AQS site identification number for each site	58.10 (b)(1)	Yes, Detailed site information	Yes	
58.	Location of each site: street address and geographic coordinates	58.10 (b)(2)	Yes, Detailed site information	Yes	
59.	MSA, CBSA, CSA or other area represented by the monitor	58.10 (b)(8)	Yes, Detailed site information	Yes	
60.	Parameter occurrence code for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Yes, Detailed site information	Yes	Please confirm whether the POC of the PM ₁₀ monitor at the Toll Road site is 22, or if that is a typo.
61.	Statement of purpose for each monitor	58.10 (a)(1)	Yes, Detailed site information	Yes	
62.	Basic monitoring objective for each monitor	App D 1.1 58.10 (b)(6)	Yes, Detailed site information	Yes	
63.	Site type for each monitor	App D 1.1.1	Yes, Detailed site information	Yes	
64.	Monitor type for each monitor	Needed to determine if other requirements (e.g., min # and collocation) are met	Yes, Detailed site information	Yes	
65.	Scale of representativeness for each monitor as defined in Appendix D	58.10(b)(6); App D	Yes, Detailed site information	Insufficient to judge	The information in the plan states that the Plumb-Kit site is 12m from an intersection, but >30m from each roadway. Please work with EPA to determine the appropriate scale for the PM ₁₀ monitor at the Plumb-Kit site, and confirm whether it is 12m or >30m from the roadway.

	ANP requirement	Citation within 40 CFR 58	Was the information submitted? ¹ If yes, page #s. Flag if incorrect ² ?	Does the information provided ³ meet the requirement? ⁴	Notes
					obstruction to the flow to the monitors. Next year, please also include a discussion of whether or not these trees are expected to act as scavengers of the pollutants of interest as well.
77.	Distance to furnace or incinerator flue	App E 3(b)	Yes, Detailed site information	Yes	
78.	Unrestricted airflow	App E, 4(a) and 4(b)	Yes, Detailed site information	Yes	
79.	Probe material (NO _x , SO ₂ , O ₃)	App E 9	Yes, Detailed site information	Yes	
80.	Residence time (NO _x , SO ₂ , O ₃)	App E 9	Yes, Detailed site information	Yes	

Public Comments on Annual Network Plan

Were comments submitted to the S/L/T agency during the public comment period?

No

If no, skip the remaining questions.

If yes:

- Were any of the comments substantive?
 - If yes, which ones?
 - Explain basis for determination if any comments were considered not substantive:
- Did the agency respond to the substantive comments?
 - If yes, was the response adequate?
- Do the substantive comments require separate EPA response (i.e., agency response wasn't adequate)?
- Are the sections of the annual network plan that received substantive comments approvable after consideration of comments?
 - If yes, provide rationale:

APPENDIX B

2014 DATA CERTIFICATION LETTER

April 30, 2015

Jared Blumenfeld
Regional Administrator
U.S. EPA Region 9
75 Hawthorne Street
Mail Code: ORA-1
San Francisco, CA 94105

Re: CY2014 Ambient Air Monitoring Data Certification

Dear Mr. Blumenfeld:

Attached please find a copy of the Washoe County Health District, Air Quality Management Division's (AQMD) AQS AMP600 Data Certification Report and AMP450NC Quick Look summary report for ambient air monitoring data for all State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitors (SPMs) which meet criteria in 40 CFR 58 Appendix A operated from January 1 to December 31, 2014. Data from the following is included:

- Federal Reference Method (FRM) and Federal Equivalent Method (FEM) monitors for CO, NO/NO_x/NO₂, ozone, PM₁₀, PM_{10-2.5}, and PM_{2.5}.
- Filter-based PM_{2.5} speciation monitors (total mass and speciated components) where AQMD manages the monitoring station, changes filters, and performs calibrations, verifications, audits, and maintenance on the monitor, but chemical analysis and AQS data submittal are performed by Research Triangle Institute (RTI) under EPA-managed contract.
- NCore station precursor gas monitors for CO, NO/NO_y/NO_y-NO, and SO₂ (hourly and 5-minute average data).
- NCore station meteorological instruments measuring wind speed, wind direction, ambient temperature, and relative humidity.

Please note that AQMD requested to discontinue CO monitoring at the South Reno SLAMS (AQS ID: 32-031-0022) on June 11, 2014 and received EPA approval on September 19, 2014. Monitoring officially discontinued on October 1, 2014.

AQMD also requested closure the Galletti SLAMS (AQS ID: 32-031-0022) on March 5, 2015, including discontinuation of all monitors (CO, PM₁₀, PM_{2.5}, PM_{10-2.5}, and meteorology). In November 2014, the Nevada Department of Transportation (NDOT) informed the AQMD of an emergency paving project requiring the Galletti SLAMS to be removed its current location. Final quality assurance verifications were conducted during the week of November 17, 2014. Data capture will not meet 75 percent for the October-December 2014 reporting period. An AQS AMP430 Data Completeness Report for Galletti SLAMS is also attached.

Jared Blumenfeld
April 30, 2015
Re: CY2014 Ambient Air Monitoring Data Certification
Page 2 of 2

This letter certifies that the ambient concentration data and the quality assurance data are completely submitted to AQS (with the exception of the notes above), and the ambient data are accurate to the best of my knowledge taking into consideration the quality assurance findings.

Please contact me or Craig Petersen at (775) 784-7200 with any questions or concerns.

Sincerely,



Daniel Inouye
Branch Chief, Monitoring and Planning

DI/CP:cp

Attachments

cc: Fletcher Clover, Air Quality Analysis Office, U.S. EPA, Region 9
Gwen Yoshimura, Air Quality Analysis Office, U.S. EPA, Region 9
Charlene Albee, Director, AQMD

User ID: BAA

CERTIFICATION EVALUATION AND CONCURRENCE

Report Request ID: 1327870

Report Code: AMP600

Apr. 28, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	32	031									

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
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CRITERIA

AGENCY SELECTIONS

Washoe County District Health Department

SELECTED OPTIONS

Option Type	Option Value
MERGE PDF FILES	YES
AGENCY ROLE	CERTIFYING

DATE CRITERIA

Start Date	End Date
2014	2014

Data Evaluation and Concurrence Report Summary

Apr. 28, 2015

Certification Year: 2014

Certifying Agency (CA): Washoe County District Health Department (1138)

Pollutants in Report:

<u>Parameter Name</u>	<u>Code</u>	<u>Monitors Evaluated</u>	<u>Monitors Recommended for Concurrence by AQS</u>	<u>Monitors NOT Recommended for Concurrence by AQS</u>
Carbon monoxide	42101	6	6	0
Nitrogen dioxide (NO2)	42602	1	1	0
Ozone	44201	6	6	0
PM10 Total 0-10um STP	81102	7	7	0
PM2.5 - Local Conditions	88101	5	5	0
Sulfur dioxide	42401	1	1	0

PQAOs in Report:

<u>PQAO Name</u>	<u>PQAO Code</u>	<u>TSA Date</u>
Washoe County District Health Department	1138	09/16/10

Summary of 'N' flags for all pollutants:

<u>Parameter</u>	<u>AQS Recommended</u>	<u>Cert. Agency Recommended</u>	<u>Reason for AQS Recommendation</u>
<u>PQAO</u> <u>Code</u> <u>AQS Site-ID</u> <u>POC</u> <u>Flag</u>		<u>Flag</u>	

Signature of Monitoring Organization Representative:

Daniel L. Loney

Certifying Year	2014
Certifying Agency Code	Washoe County District Health Department (1138)
Parameter	Carbon monoxide (42101) (ppm)

QAPP Approval Date 02/12/2013

1	3.16369	Y
---	---------	---

AQS Site ID	POC Monitor Type	Routine Data						One Point Quality Check			Annual PE		NPAP		QAPP Appr.	Concur. Flag		
		Mean	Min	Max	Exceed. Count	Outlier Count	Perc. Comp.	Precision	Bias	Complete	Bias	Complete	Bias	PQAO Level Criteria		Aqs Rec Flag	CA Rec Flag	Epa Concur
32-031-0016	1	SLAMS	0.279	0.010	3.009	0	0	97	5.18	+/-4.11	100	- 4.44	100	3.16	Y	Y	Y	
32-031-0020	1	SLAMS	0.281	0.250	2.600	0	0	99	1.73	+3.16	100	0.15	100		Y	Y	Y	
32-031-0022	1	SLAMS	0.411	0.250	2.800	0	0	88	2.04	+/-1.49	88	5.48	100		Y	Y	Y	
32-031-0025	1	SLAMS	0.260	0.250	1.600	0	0	96	3.03	+2.76	100	3.57	100		Y	Y	Y	
32-031-1005	1	SLAMS	0.448	0.250	3.400	0	0	99	1.81	+/-1.72	96	1.34	100		Y	Y	Y	
32-031-2009	1	SLAMS	0.306	0.250	3.100	0	0	99	1.42	+/-1.57	100	4.39	100		Y	Y	Y	

Certifying Year	2014
Certifying Agency Code	Washoe County District Health Department (1138)
Parameter	Nitrogen dioxide (NO2) (42602) (ppb)

QAPP Approval Date 02/12/2013

NPAP Audit Summary:

Number of Valid Audits

NPAP Bias

Criteria Met

0

Y

AQS Site ID	POC Monitor Type	Routine Data						One Point Quality Check			Annual PE		NPAP		QAPP Appr.	Concur. Flag		
		Mean	Min	Max	Exceed. Count	Outlier Count	Perc. Comp.	Precision	Bias	Complete	Bias	Complete	Bias	PQAO Level Criteria		Aqs Rec Flag	CA Rec Flag	Epa Concur
32-031-0016	1 SLAMS	13.7	0.8	60.4		0	98	3.29	+/-2.61	100	- 1.12	100		Y	Y	Y		

Certifying Year	2014
Certifying Agency Code	Washoe County District Health Department (1138)
Parameter	Sulfur dioxide (42401) (ppb)

<u>NPAP Audit Summary:</u>	Number of Valid Audits	NPAP Bias	Criteria Met
	0		Y

AQS Site ID	POC Monitor Type	Routine Data						One Point Quality Check			Annual PE		NPAP		QAPP Appr.	Concur. Flag		
		Mean	Min	Max	Exceed. Count	Outlier Count	Perc. Comp.	Precision	Bias	Complete	Bias	Complete	Bias	PQAO Level Criteria		Aqs Rec Flag	CA Rec Flag	Epa Concur
32-031-0016	1 SLAMS	0.4	- 0.2	6.9		0	94	6.54	+/-5.55	100	- 3.16	100		Y	Y	Y		

Data Evaluation and Concurrence Report for Particulate Matter

Certifying Year:2014

Certifying Agency:Washoe County District Health Department (1138)

Parameter: PM10 Total 0-10um STP (81102) CONTINUOUS

PQAO Name: Washoe County District Health Department (1138)

Quality Assurance Project Plan Approval Date: 02/12/2013

Monitors Summaries

AQS Site ID	POC	Monitor Type	Routine Data (ug/m3)						Flow Rate Verification		Flow Rate Audit		QAPP Appr.	Concurrence Flag		
			Mean	Min	Max	Exceed. Count	Outlier Count	% Complete	Bias	% Complete	Bias	% Complete		AQS Rec Flag	CA Rec Flag	EPA Rec Concur
32-031-0016	2	SLAMS	19.16	2.0	802.0		0	98	+1.21	100	+0.73	100	Y	Y		
32-031-0020	2	SLAMS	18.23	2.0	556.0		0	99	+1.02	100	-0.29	100	Y	Y		
32-031-0022	6	SLAMS	32.63	2.0	964.0		0	86	+1.68	100	+0.17	100	Y	Y		
32-031-0025	2	SLAMS	17.20	2.0	923.0		0	99	+1.00	100	-0.06	100	Y	Y		
32-031-0030	2	SLAMS	23.72	2.0	592.0		0	99	+0.78	100	-0.39	100	Y	Y		
32-031-1005	4	SLAMS	23.25	2.0	793.0		0	98	+/-1.41	100	-0.71	100	Y	Y		

Parameter: PM10 Total 0-10um STP (81102) INTERMITTENT

PQAO Name: Washoe County District Health Department (1138)

Quality Assurance Project Plan Approval Date: 02/12/2013

Collocation Summary

# Sites	# Sites Req	# Sites Collocated	% Collocated	CV Est	CV UB	Criteria Met?
0	0	0	100			Y

Monitors Summaries

AQS Site ID	POC	Monitor Type	Routine Data (ug/m3)						Flow Rate Audit		Collocation		PQAO Crit. Met	QAPP Appr.	Concurrence Flag		
			Mean	Min	Max	Exceed. Count	Outlier Count	% Complete	Bias	% Complete	CV	% Complete			AQS Rec Flag	CA Rec Flag	EPA Rec Concur
32-031-0016	1	SLAMS	19.07	2.0	124.0	0	0	100	-1.17	100			Y	Y	Y		

Data Evaluation and Concurrence Report for Particulate Matter

Certifying Year:2014

Certifying Agency: Washoe County District Health Department (1138)

Parameter: PM2.5 - Local Conditions (88101)

PQAO Name: Washoe County District Health Department (1138)

Quality Assurance Project Plan Approval Date: 02/12/2013

Collocation Summary

<u>Method</u>	<u># Sites</u>	<u># Sites</u> <u>Req</u>	<u># Sites</u> <u>Collocated</u>	<u>%</u> <u>Collocated</u>	<u>CV</u> <u>Est</u>	<u>CV</u> <u>UB</u>	<u>Criteria</u> <u>Met?</u>
170	3	1	1	100	11.78	12.60	Y

PEP Summary

<u>#</u> <u>Methods</u>	<u># Audited</u> <u>Methods</u>	<u># PEP</u> <u>Required</u>	<u># PEP</u> <u>Submitted</u>	<u>%</u> <u>Complete</u>	<u>Bias</u>	<u>Criteria</u> <u>Met?</u>
1	0	5	5	100	-0.75	Y

Monitors Summaries

Routine Data (ug/m3)										Flow Rate Audit		Collocation			PEP		Concurrence Flag		
AQS Site ID	POC	Method	Monitor	Mean	Min	Max	Exceed. Count	Outlier Count	% Complete	Bias	% Complete	CV	% Complete	PQAO Crit. Met	PQAO Crit. Met	QAPP Appr.	AQS Rec Flag	CA Rec Flag	EPA Concur
			Type																
32-031-0016	1	142	SLAMS	6.62	1.1	87.5		0	100	-1.91	100			Y	Y	Y	Y		
32-031-0016	2	142	SLAMS	6.55	1.1	86.5		0	100	-2.16	100			Y	Y	Y	Y		
32-031-0016	3	170	SLAMS	7.70	-10.0	270.0		0	98	+0.15	100	13.03	100	Y	Y	Y	Y		
32-031-0022	1	170	SLAMS	7.69	-7.0	262.0		0	86	-0.47	100			Y	Y	Y	Y		
32-031-1005	1	170	SLAMS	8.71	-6.0	249.0		0	98	+0.71	100			Y	Y	Y	Y		

Data Concurrence and Evaluation Report for Lead

User ID: BAA

QUICKLOOK ALL PARAMETERS

Report Request ID: 1325753

Report Code: AMP450NC

Apr. 23, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	32	031									

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
ALL			

AGENCY SELECTIONS

Washoe County District Health Department

SELECTED OPTIONS

Option Type	Option Value
MERGE PDF FILES	YES
EVENTS PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
AGENCY ROLE	PQAO

SORT ORDER

Order	Column
1	STATE_CODE
2	COUNTY_CODE
3	SITE_ID
4	PARAMETER_CODE
5	POC
6	DATES
7	EDT_ID

SCR GROUP SELECTIONS

Washoe Co,NV

DATE CRITERIA

Start Date	End Date
2014	2014

APPLICABLE STANDARDS

Standard Description

CO 8-hour 1971
Lead 3-Month 2009
Lead 3-Month PM10 Surrogate 2009
Lead Quarterly 1978
NO2 Annual 1971
Ozone 8-Hour 2008
PM10 24-hour 2006
PM25 24-hour 2013
SO2 1-hour 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

EXCEPTIONAL DATA TYPES

EDT	DESCRIPTION
0	NO EVENTS
1	EVENTS EXCLUDED
2	EVENTS INCLUDED
5	EVENTS WITH CONCURRENCE EXCLUDED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

			P														
			O				#	1st Max	2nd Max	3rd Max	4th Max	Arith.		Cert&	EDT		
Parameter		Unit	C	PQAO	Year	Meth	Obs	Value	Value	Value	Value	Mean	Duration	Eval			
Site ID: 32-031-0016		City: Reno	County: Washoe				Address: 301 A STATE STREET, RENO, NV 89502										
42101	Carbon monoxide	Parts per million	1	1138	2014	593	8480	1.7	1.7	1.7	1.7	.28	8-HR RUN AVG END HOUR		0		
42401	Sulfur dioxide	Parts per billion	1	1138	2014	600	8263	6.9	6.3	6.1	6.0	1.11	1 HOUR		0		
42401	Sulfur dioxide	Parts per billion	2	1138	2014	600	*****	12.9	10.9	10.8	10.6	.38	5 MINUTE		0		
42600	Reactive oxides of nitrogen (NOy)	Parts per billion	1	1138	2014	699	8462	279.7	268.6	264.0	254.1	21.63	1 HOUR		0		
42601	Nitric oxide (NO)	Parts per billion	1	1138	2014	099	8572	239.7	232.4	216.7	212.7	9.27	1 HOUR		0		
42601	Nitric oxide (NO)	Parts per billion	2	1138	2014	599	8462	225.1	223.8	216.3	204.7	8.46	1 HOUR		0		
42602	Nitrogen dioxide (NO2)	Parts per billion	1	1138	2014	099	8572	60.4	58.1	57.2	57.1	13.72	1 HOUR		0		
42603	Oxides of nitrogen (NOx)	Parts per billion	1	1138	2014	099	8572	294.0	269.6	262.2	254.8	23.00	1 HOUR		0		
42612	NOy - NO	Parts per billion	1	1138	2014	699	8461	64.2	63.6	58.5	55.1	13.17	1 HOUR		0		
44201	Ozone	Parts per million	1	1138	2014	087	8452	.076	.074	.073	.071	.0445	8-HR RUN AVG BEGIN HOUR		0		
61101	Wind Speed - Scalar	Knots	1	1138	2014	061	8757	13.0	13.0	12.2	11.8	3.09	1 HOUR		0		
61102	Wind Direction - Scalar	Degrees Compass	1	1138	2014	061	8757	324	322	320	319	206.8	1 HOUR		0		
61103	Wind Speed - Resultant	Knots	1	1138	2014	061	8757	12.4	12.4	11.7	11.3	2.43	1 HOUR		0		
61104	Wind Direction - Resultant	Degrees Compass	1	1138	2014	061	8757	360	360	360	360	201.8	1 HOUR		0		
62101	Outdoor Temperature	Degrees Fahrenheit	1	1138	2014	040	8731	102	101	100	100	56.6	1 HOUR		0		
62201	Relative Humidity	Percent relative humidity	1	1138	2014	061	8759	98	98	98	98	43.2	1 HOUR		0		
68105	Ambient Temperature	Degrees Centigrade	1	1138	2014	142	122	29.8	28.9	28.6	27.3	13.65	24 HOUR		0		
68105	Ambient Temperature	Degrees Centigrade	2	1138	2014	142	116	29.9	29.1	28.7	27.4	13.48	24 HOUR		0		
68108	Sample Baro Pressure	Millimeters (mercury)	1	1138	2014	142	122	657	653	652	652	644.5	24 HOUR		0		
68108	Sample Baro Pressure	Millimeters (mercury)	2	1138	2014	142	117	656	652	651	651	643.8	24 HOUR		0		
81102	PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	1	1138	2014	125	122	124	60	48	47	19.1	24 HOUR		0		
81102	PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	360	134	126	79	67	18.7	24-HR BLK AVG		0		
81102	PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	8623	802	354	336	287	19.2	1 HOUR		0		
85101	PM10 - LC	Micrograms/cubic meter (LC)	1	1138	2014	125	122	107	51	44	40	16.8	24 HOUR		0		
85101	PM10 - LC	Micrograms/cubic meter (LC)	2	1138	2014	122	8591	712	307	290	246	17.4	1 HOUR		0		

Note: The * indicates that the mean does not satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

			P O C				#	1st Max	2nd Max	3rd Max	4th Max	Arith.		Cert&	EDT
Parameter		Unit	PQAO	Year	Meth	Obs	Value	Value	Value	Value	Mean	Duration	Eval		
Site ID: 32-031-0016		City: Reno	County: Washoe			Address: 301 A STATE STREET, RENO, NV 89502									
86101	PM10-2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	173	121	32.8	31.9	30.0	30.0	10.54	24 HOUR		0
86101	PM10-2.5 - Local Conditions	Micrograms/cubic meter (LC)	2	1138	2014	185	8585	644.0	166.0	157.0	116.0	9.35	1 HOUR		0
88101	PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	142	121	87.5	30.5	17.8	14.9	6.62	24 HOUR		5
88101	PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	2	1138	2014	142	117	86.5	30.5	14.3	13.9	6.55	24 HOUR		5
88101	PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	3	1138	2014	170	361	100.9	93.0	62.0	39.7	7.68	24-HR BLK AVG		5
88101	PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	3	1138	2014	170	8630	270.0	270.0	233.0	211.0	7.70	1 HOUR		5
Site ID: 32-031-0020		City: Reno	County: Washoe			Address: 4110 DE LUCCI LANE, RENO NV 89502									
42101	Carbon monoxide	Parts per million	1	1138	2014	093	6551	1.3	1.2	1.2	1.2	.32	8-HR RUN AVG END HOUR		0
44201	Ozone	Parts per million	1	1138	2014	087	8748	.073	.070	.069	.068	.0437	8-HR RUN AVG BEGIN HOUR		0
61101	Wind Speed - Scalar	Knots	1	1138	2014	061	8759	29.3	28.2	26.8	25.6	3.73	1 HOUR		0
61102	Wind Direction - Scalar	Degrees Compass	1	1138	2014	061	8759	313	312	311	311	178.9	1 HOUR		0
62101	Outdoor Temperature	Degrees Fahrenheit	1	1138	2014	040	8759	100	100	98	98	54.9	1 HOUR		0
81102	PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	365	106	102	89	70	17.9	24-HR BLK AVG		0
81102	PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	8715	556	530	455	356	18.2	1 HOUR		0
Site ID: 32-031-0022		City: Reno	County: Washoe			Address: 305 GALLETTI WAY RENO									
42101	Carbon monoxide	Parts per million	1	1138	2014	093	7711	2.0	1.9	1.9	1.9	.44	8-HR RUN AVG END HOUR		0
61101	Wind Speed - Scalar	Knots	1	1138	2014	061	7713	20.8	19.4	17.5	17.5	3.98	1 HOUR		0
61102	Wind Direction - Scalar	Degrees Compass	1	1138	2014	061	7713	322	322	321	321	194.9	1 HOUR		0
62101	Outdoor Temperature	Degrees Fahrenheit	1	1138	2014	040	7714	103	103	102	100	59.0	1 HOUR		0

Note: The * indicates that the mean does not satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

Parameter	Unit	P O C	PQAO	Year	Meth	# Obs	1st Max Value	2nd Max Value	3rd Max Value	4th Max Value	Arith. Mean	Duration	Cert& Eval	EDT
Site ID: 32-031-0022 City: Reno		County: Washoe		Address: 305 GALLETTI WAY RENO										
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	6	1138	2014	122	7567	964	555	426	408	32.6	1 HOUR		5
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	6	1138	2014	122	314	135	106	105	104	31.7*	24-HR BLK AVG		5
85101 PM10 - LC	Micrograms/cubic meter (LC)	2	1138	2014	122	7562	851	460	403	385	28.9	1 HOUR		0
86101 PM10-2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	185	7537	773.0	430.0	363.0	360.0	20.61	1 HOUR		0
88101 PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	170	7567	262.0	259.0	222.0	203.0	7.69	1 HOUR		5
88101 PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	170	315	100.2	87.4	57.6	47.0	7.64*	24-HR BLK AVG		5
Site ID: 32-031-0025 City: Reno		County: Washoe		Address: 684A STATE ROUTE 341, RENO NV 89521										
42101 Carbon monoxide	Parts per million	1	1138	2014	093	8455	1.1	1.1	1.0	1.0	.31	8-HR RUN AVG END HOUR		0
44201 Ozone	Parts per million	1	1138	2014	087	8699	.075	.069	.068	.067	.0448	8-HR RUN AVG BEGIN HOUR		0
61101 Wind Speed - Scalar	Knots	1	1138	2014	061	8759	29.9	29.3	28.0	27.6	4.99	1 HOUR		0
61102 Wind Direction - Scalar	Degrees Compass	1	1138	2014	061	8759	319	319	318	318	171.9	1 HOUR		0
62101 Outdoor Temperature	Degrees Fahrenheit	1	1138	2014	040	8758	102	101	100	100	55.3	1 HOUR		0
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	8700	923	527	415	400	17.2	1 HOUR		0
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	364	121	95	92	83	16.8	24-HR BLK AVG		0
Site ID: 32-031-0030 City: Reno		County: Washoe		Address: 891 E. PLUMB LN., RENO, NV 89502										
61101 Wind Speed - Scalar	Knots	1	1138	2014	061	8759	26.6	26.0	22.7	22.3	3.86	1 HOUR		0
61102 Wind Direction - Scalar	Degrees Compass	1	1138	2014	061	8759	324	324	323	322	206.2	1 HOUR		0
62101 Outdoor Temperature	Degrees Fahrenheit	1	1138	2014	040	8760	101	101	100	100	56.3	1 HOUR		0
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	362	136	125	89	87	23.4	24-HR BLK AVG		0

Note: The * indicates that the mean does not satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

Parameter	Unit	P O C	PQAO	Year	Meth	# Obs	1st Max Value	2nd Max Value	3rd Max Value	4th Max Value	Arith. Mean	Duration	Cert& Eval	EDT
Site ID: 32-031-0030 City: Reno		County: Washoe		Address: 891 E. PLUMB LN., RENO, NV 89502										
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	2	1138	2014	122	8677	592	401	357	296	23.7	1 HOUR		0
Site ID: 32-031-1005 City: Sparks		County: Washoe		Address: 750 4TH ST, SPARKS, NV 89431										
42101 Carbon monoxide	Parts per million	1	1138	2014	093	8730	2.7	2.6	2.5	2.5	.47	8-HR RUN AVG END HOUR		0
44201 Ozone	Parts per million	1	1138	2014	087	8730	.074	.073	.071	.069	.0425	8-HR RUN AVG BEGIN HOUR		0
61101 Wind Speed - Scalar	Knots	1	1138	2014	061	8759	19.4	19.2	18.8	18.8	3.15	1 HOUR		0
61102 Wind Direction - Scalar	Degrees Compass	1	1138	2014	061	8759	324	320	316	315	186.4	1 HOUR		0
62101 Outdoor Temperature	Degrees Fahrenheit	1	1138	2014	040	8758	101	101	100	99	55.4	1 HOUR		0
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	4	1138	2014	122	8637	793	563	557	512	23.3	1 HOUR		0
81102 PM10 Total 0-10um STP	Micrograms/cubic meter (25 C)	4	1138	2014	122	361	135	115	81	79	22.8	24-HR BLK AVG		0
85101 PM10 - LC	Micrograms/cubic meter (LC)	3	1138	2014	122	4311	469	327	311	279	22.1	1 HOUR		0
86101 PM10-2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	185	4311	447.0	317.0	305.0	181.0	12.94	1 HOUR		0
88101 PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	170	8628	249.0	223.0	205.0	201.0	8.71	1 HOUR		5
88101 PM2.5 - Local Conditions	Micrograms/cubic meter (LC)	1	1138	2014	170	361	98.0	83.5	54.5	45.7	8.69	24-HR BLK AVG		5
Site ID: 32-031-2002 City: Incline Village-Crystal Bay		County: Washoe		Address: 855 ALDER DRIVE, INCLINE VILLAGE, NV 89451										
44201 Ozone	Parts per million	1	1138	2014	087	8748	.071	.065	.064	.063	.0445	8-HR RUN AVG BEGIN HOUR		0
Site ID: 32-031-2009 City: Lemmon Valley-Golden Valley		County: Washoe		Address: 325 PATRICIAN DR, LEMMON VALLEY, NV 89506										
42101 Carbon monoxide	Parts per million	1	1138	2014	093	8736	1.2	1.2	1.2	1.1	.34	8-HR RUN AVG END HOUR		0

Note: The * indicates that the mean does not satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

Parameter	Unit	P O C	PQAO	Year	Meth	# Obs	1st Max Value	2nd Max Value	3rd Max Value	4th Max Value	Arith. Mean	Duration	Cert& Eval	EDT
Site ID: 32-031-2009	City: Lemmon Valley-Golden Valley	County: Washoe	Address: 325 PATRICIAN DR, LEMMON VALLEY, NV 89506											
44201 Ozone	Parts per million	1	1138	2014	087	8736	.073	.072	.069	.067	.0455	8-HR RUN AVG BEGIN HOUR	0	

Note: The * indicates that the mean does not
satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

METHODS USED IN THIS REPORT

PARAMETER	METHOD CODE	COLLECTION METHOD	ANALYSIS METHOD
42101	093	INSTRUMENTAL	GAS FILTER CORRELATION CO ANALYZER
42101	593	INSTRUMENTAL	Gas Filter Correlation Teledyne API 300 EU
42401	600	Instrumental	Ultraviolet Fluorescence API 100 EU
42600	699	Instrumental	Chemiluminescence Teledyne API 200 EU/501
42601	099	INSTRUMENTAL	GAS PHASE CHEMILUMINESCENCE
42601	599	Instrumental	Chemiluminescence Teledyne API 200 EU/501
42602	099	INSTRUMENTAL	GAS PHASE CHEMILUMINESCENCE
42603	099	INSTRUMENTAL	GAS PHASE CHEMILUMINESCENCE
42612	699	Instrumental	Chemiluminescence Teledyne API 200 EU/501
44201	087	INSTRUMENTAL	ULTRA VIOLET ABSORPTION
61101	061	Instrumental	Met One Sonic Anemometer Model 50.5
61102	061	Instrumental	Met One Sonic Anemometer Model 50.5
61103	061	Instrumental	Met One Sonic Anemometer Model 50.5
61104	061	Instrumental	Met One Sonic Anemometer Model 50.5
62101	040	INSTRUMENTAL	ELECTRONIC OR MACHINE AVG.
62201	061	Instrumental	Met One 083D
68105	142	BGI Models PQ200-VSCC or PQ200A-VSCC	Electronic
68108	142	BGI Models PQ200-VSCC or PQ200A-VSCC	Barometric Sensor
81102	122	INSTRUMENT MET ONE 4 MODELS	BETA ATTENUATION
81102	125	BGI Inc. Model PQ200 PM10	Gravimetric
85101	122	INSTRUMENT MET ONE 4 MODELS	BETA ATTENUATION
85101	125	BGI Inc. Model PQ200 PM10	Gravimetric
86101	173	BGI Inc Model PQ200 PM10-2.5 Sampler Pair	Paired Gravimetric Difference
86101	185	Met One BAM-1020 System	Paired Beta Difference
88101	142	BGI Models PQ200-VSCC or PQ200A-VSCC	Gravimetric
88101	170	Met One BAM-1020 Mass Monitor w/VSCC	Beta Attenuation

Note: The * indicates that the mean does not satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

PQAOS USED IN THIS REPORT

PQAO	AGENCY DESCRIPTION
1138	Washoe County District Health Department

Note: The * indicates that the mean does not
satisfy summary criteria.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM

QUICKLOOK ALL PARAMETERS

Apr. 23, 2015

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR 58.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

Note: The * indicates that the mean does not satisfy summary criteria.

User ID: BAA

DATA COMPLETENESS REPORT

Report Request ID: 1327954

Report Code: AMP430

Apr. 28, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	32	031	0022								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
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ALL

SELECTED OPTIONS

Option Type	Option Value
OZONE EVALUATION	SEASONAL-HOURLY
MERGE PDF FILES	YES
AGENCY ROLE	REPORTING

SORT ORDER

Order	Column
1	EPA_REGION
2	STATE_CODE
3	MONITOR_TYPE
4	COUNTY_CODE
5	SITE_ID
6	PARAMETER_CODE
7	POC

SCR GROUP SELECTIONS

Washoe Co,NV

DATE CRITERIA

Start Date	End Date
2014 01	2014 12

APPLICABLE STANDARDS

Standard Description

CO 1-hour 1971
Lead 3-Month 2009
Lead 3-Month PM10 Surrogate 2009
Lead Quarterly 1978
NO2 Annual 1971
Ozone 1-hour Daily 2005
PM10 24-hour 2006
PM25 Annual 2013
SO2 1-hour 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Apr. 28, 2015

MONITORS NOT REPORTING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
DATA COMPLETENESS REPORT

Apr. 28, 2015

MONITORS REPORTING

DATE RANGE: JAN. 01, 2014 THRU DEC. 31, 2014
REGION: (09) SAN FRANCISCO
STATE: Nevada

REP ORG: Washoe County District Health Department
MONITOR TYPE: SLAMS

SITE ID CITY ADDRESS	PARAMETER	POC	DURATION METHOD	OBSERVATIONS ----- NUMBER / PERCENT												YEAR
				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
32-031-0022 Reno 305 GALLETTI WAY RENO	42101 Carbon monoxide	1	1 093	742 100%	670 100%	739 99%	719 100%	742 100%	716 99%	742 100%	742 100%	717 100%	740 99%	417 58%		7686 88%
32-031-0022 Reno 305 GALLETTI WAY RENO	61101 Wind Speed - Scalar	1	1 061	744 100%	672 100%	743 100%	720 100%	744 100%	720 100%	744 100%	744 100%	720 100%	744 100%	418 58%		7713 88%
32-031-0022 Reno 305 GALLETTI WAY RENO	61102 Wind Direction - Scalar	1	1 061	744 100%	672 100%	743 100%	720 100%	744 100%	720 100%	744 100%	744 100%	720 100%	744 100%	418 58%		7713 88%
32-031-0022 Reno 305 GALLETTI WAY RENO	62101 Outdoor Temperature	1	1 040	744 100%	672 100%	744 100%	720 100%	744 100%	720 100%	744 100%	744 100%	720 100%	744 100%	418 58%		7714 88%
32-031-0022 Reno 305 GALLETTI WAY RENO	81102 PM10 Total 0-10um STP	6	1 122	737 99%	667 99%	739 99%	716 99%	738 99%	715 99%	741 100%	714 96%	716 99%	668 90%	416 58%		7567 86%
32-031-0022 Reno 305 GALLETTI WAY RENO	85101 PM10 - LC	2	1 122	737 99%	666 99%	737 99%	716 99%	738 99%	715 99%	741 100%	714 96%	716 99%	668 90%	414 58%		7562 86%
32-031-0022 Reno 305 GALLETTI WAY RENO	86101 PM10-2.5 - Local Conditions	1	1 185	737 99%	667 99%	736 99%	716 99%	738 99%	715 99%	741 100%	692 93%	713 99%	668 90%	414 58%		7537 86%
32-031-0022 Reno 305 GALLETTI WAY RENO	88101 PM2.5 - Local Conditions	1	1 170	741 100%	667 99%	738 99%	716 99%	738 99%	715 99%	741 100%	714 96%	713 99%	668 90%	416 58%		7567 86%

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 AIR QUALITY SYSTEM
 DATA COMPLETENESS REPORT

Apr. 28, 2015

REPORT SUMMARY

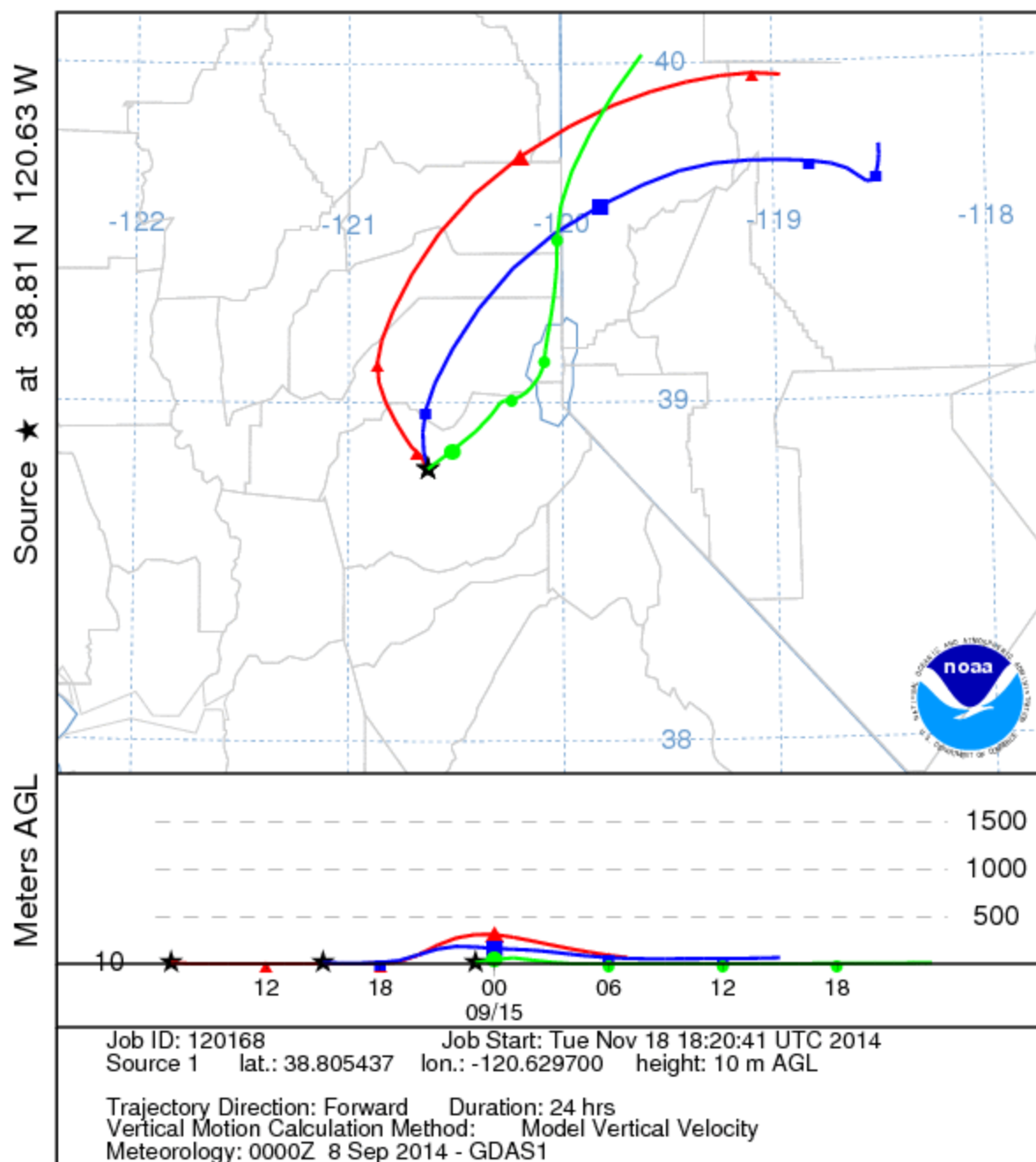
DATE RANGE: JAN. 01, 2014 THRU DEC. 31, 2014
 REGION: (09) SAN FRANCISCO
 STATE: Nevada
 REP ORG: Washoe County District Health Department
 MONITOR TYPE: SLAMS

PARAMETER	ACTIVE MONITORS	# NOT REPORTING	# MONITORS > 75%	MONITORS AVG COMPLETENESS
42101 Carbon monoxide	1	0	1	88.0%
61101 Wind Speed - Scalar	1	0	1	88.0%
61102 Wind Direction - Scalar	1	0	1	88.0%
62101 Outdoor Temperature	1	0	1	88.0%
81102 PM10 Total 0-10um STP	1	0	1	86.0%
85101 PM10 - LC	1	0	1	86.0%
86101 PM10-2.5 - Local Conditions	1	0	1	86.0%
88101 PM2.5 - Local Conditions	1	0	1	86.0%
MT SUMMARY: SLAMS	8	0	8	87.0%
RO SUMMARY: Washoe County District Health Department	8	0	8	87.0%
STATE SUMMARY: Nevada	8	0	8	87.0%
REGION SUMMARY: (09) SAN FRANCISCO	8	0	8	87.0%
REPORT SUMMARY:	8	0	8	87.0%

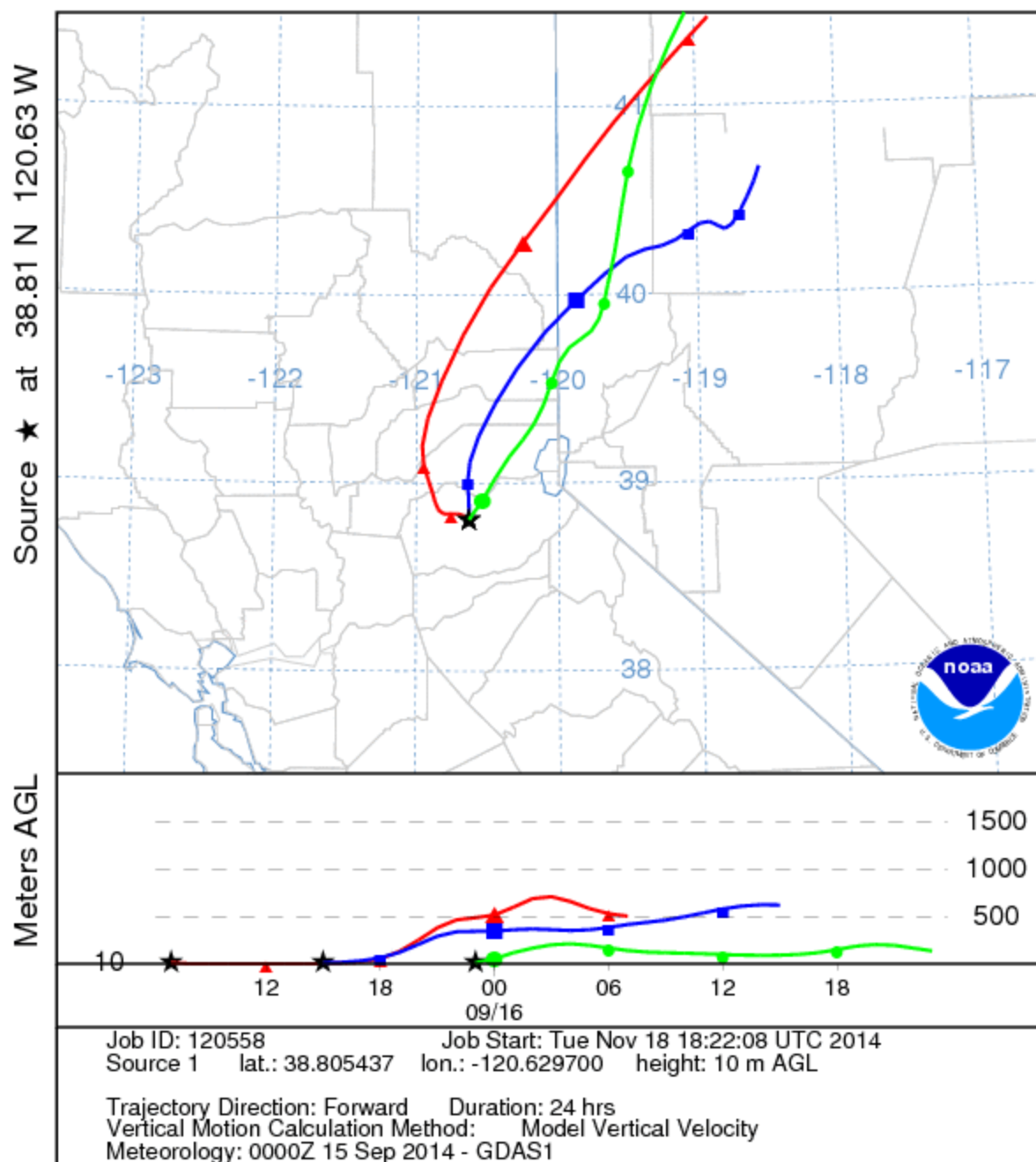
APPENDIX C

FORWARD HYSPLIT TRAJECTORIES

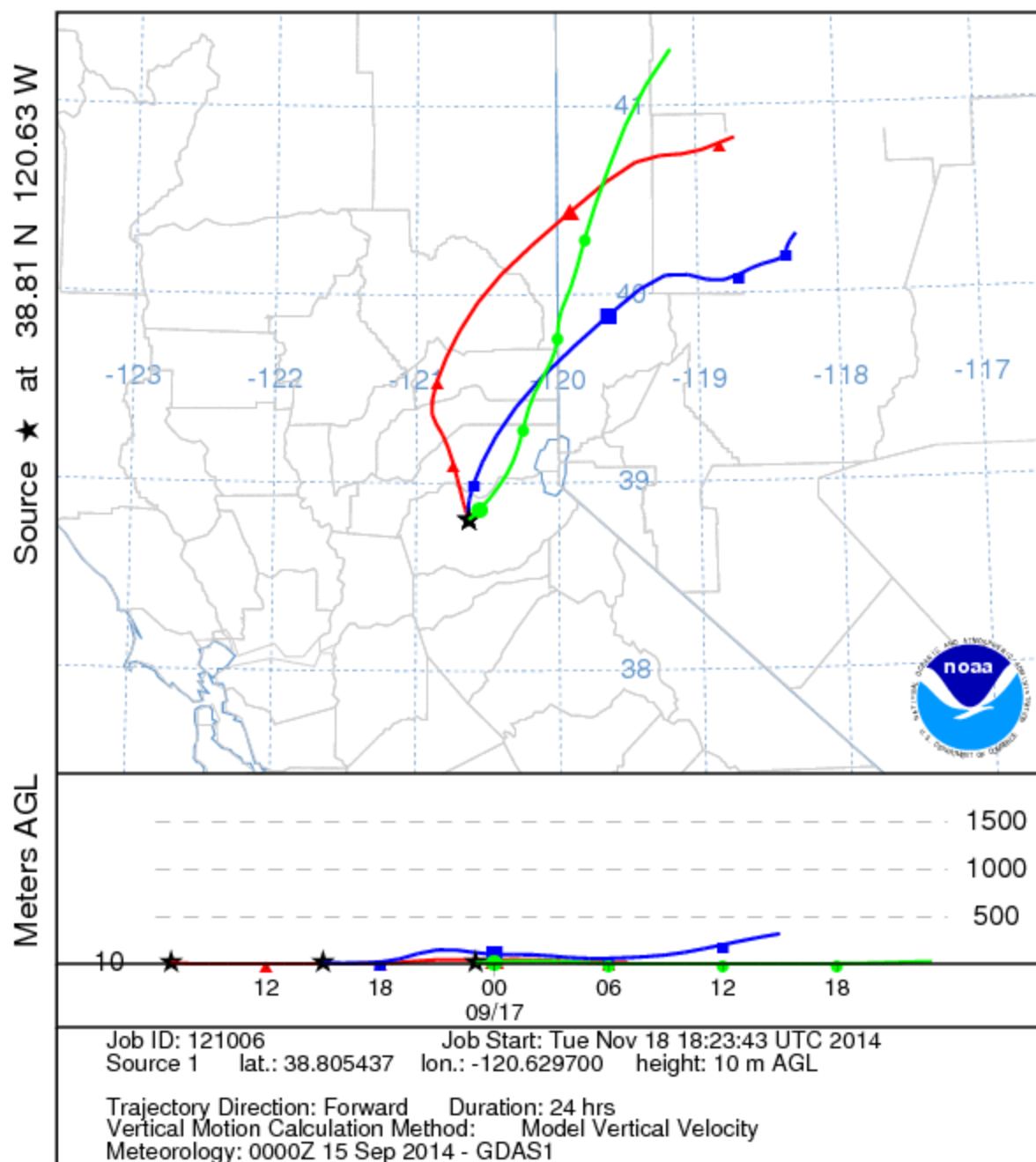
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Forward trajectories starting at 0700 UTC 14 Sep 14
GDAS Meteorological Data



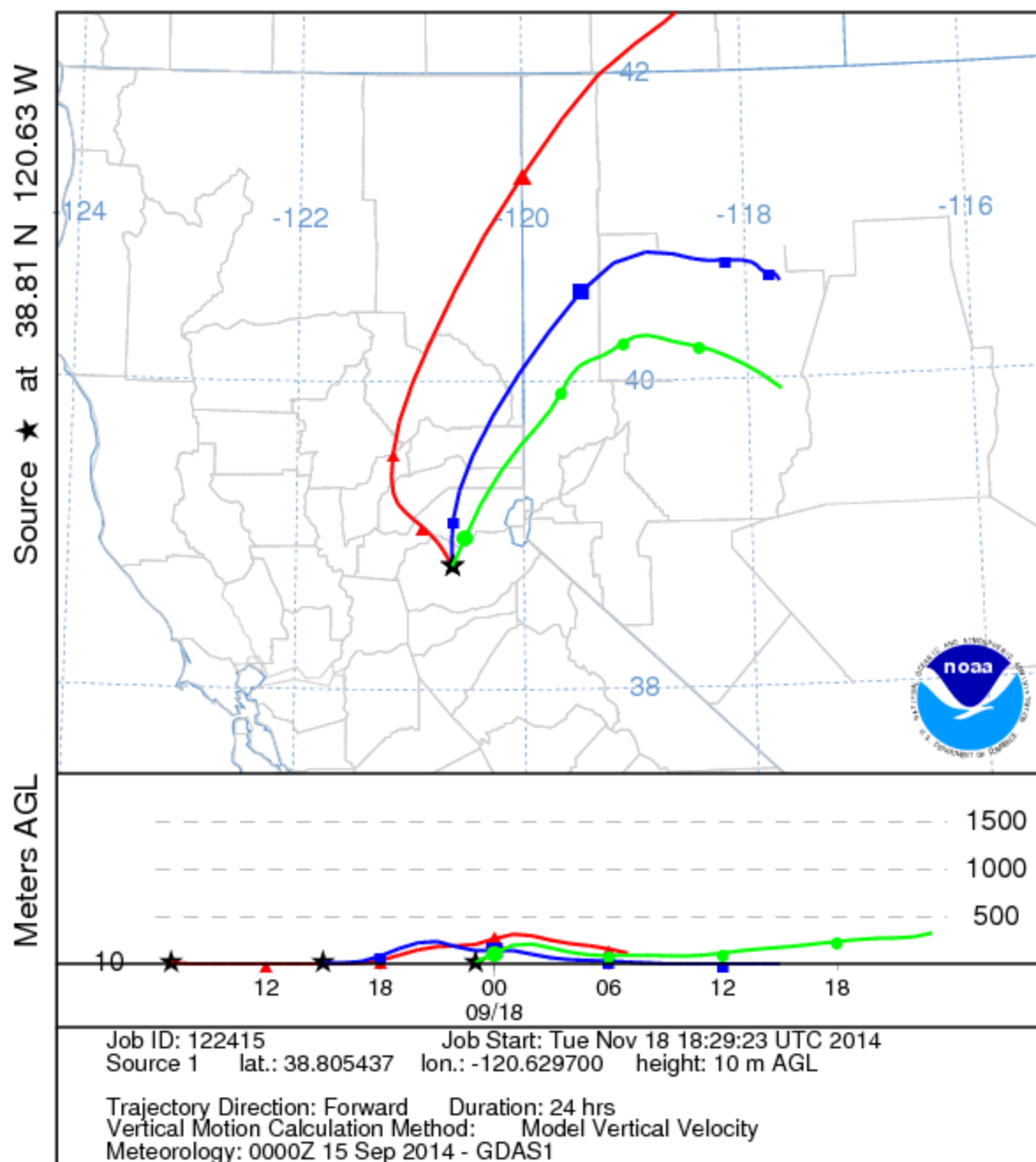
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GDAS Meteorological Data



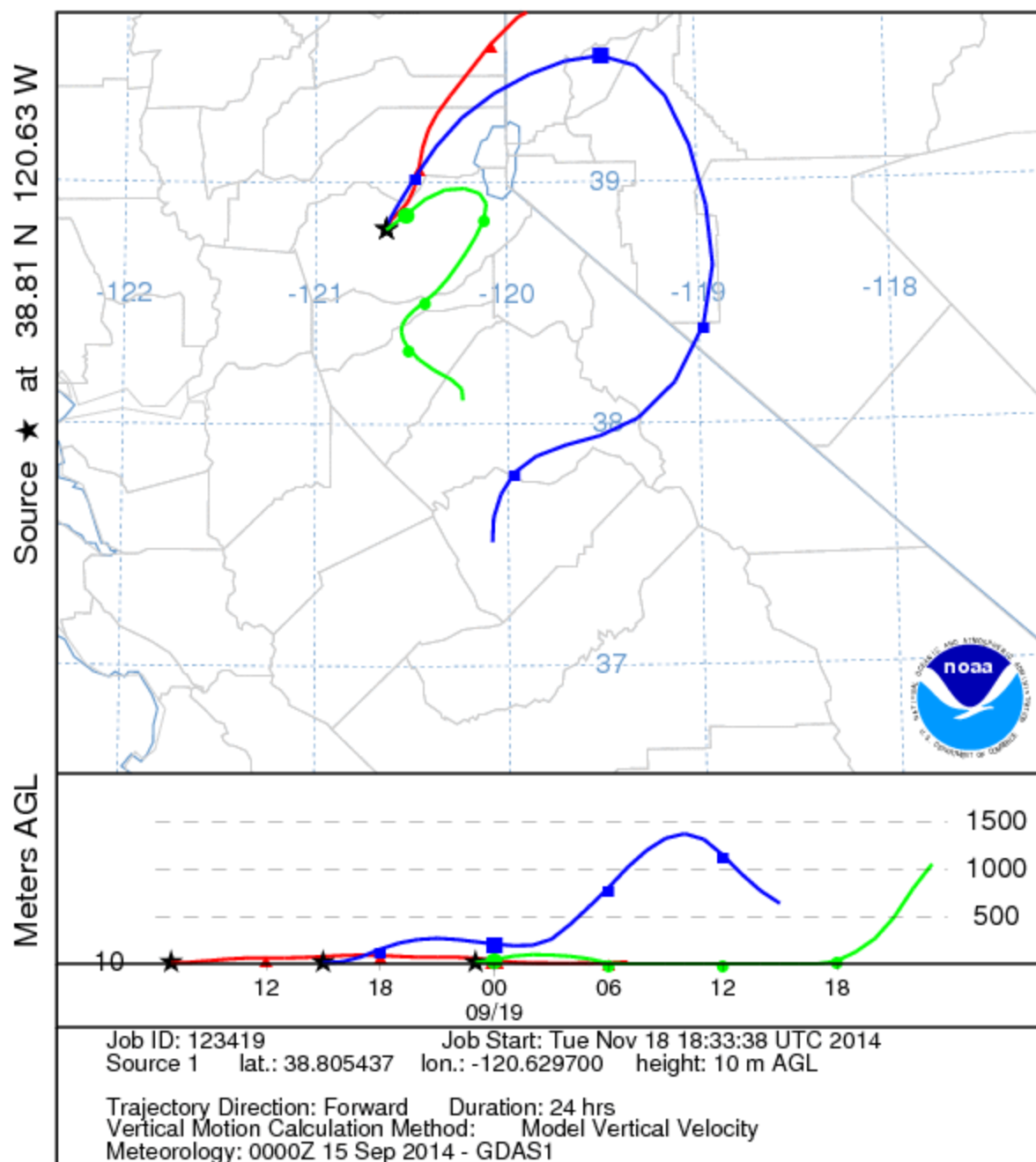
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GDAS Meteorological Data



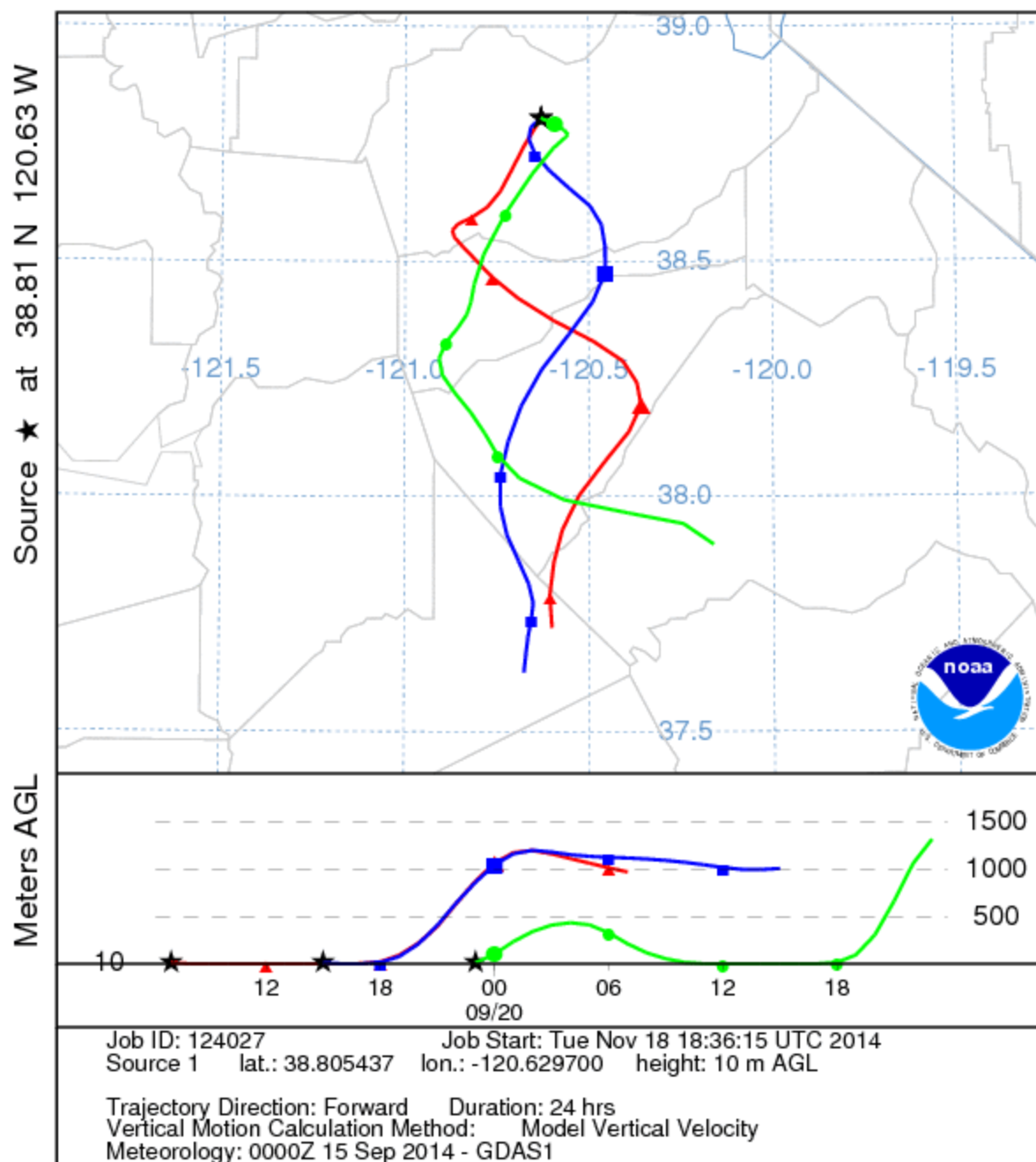
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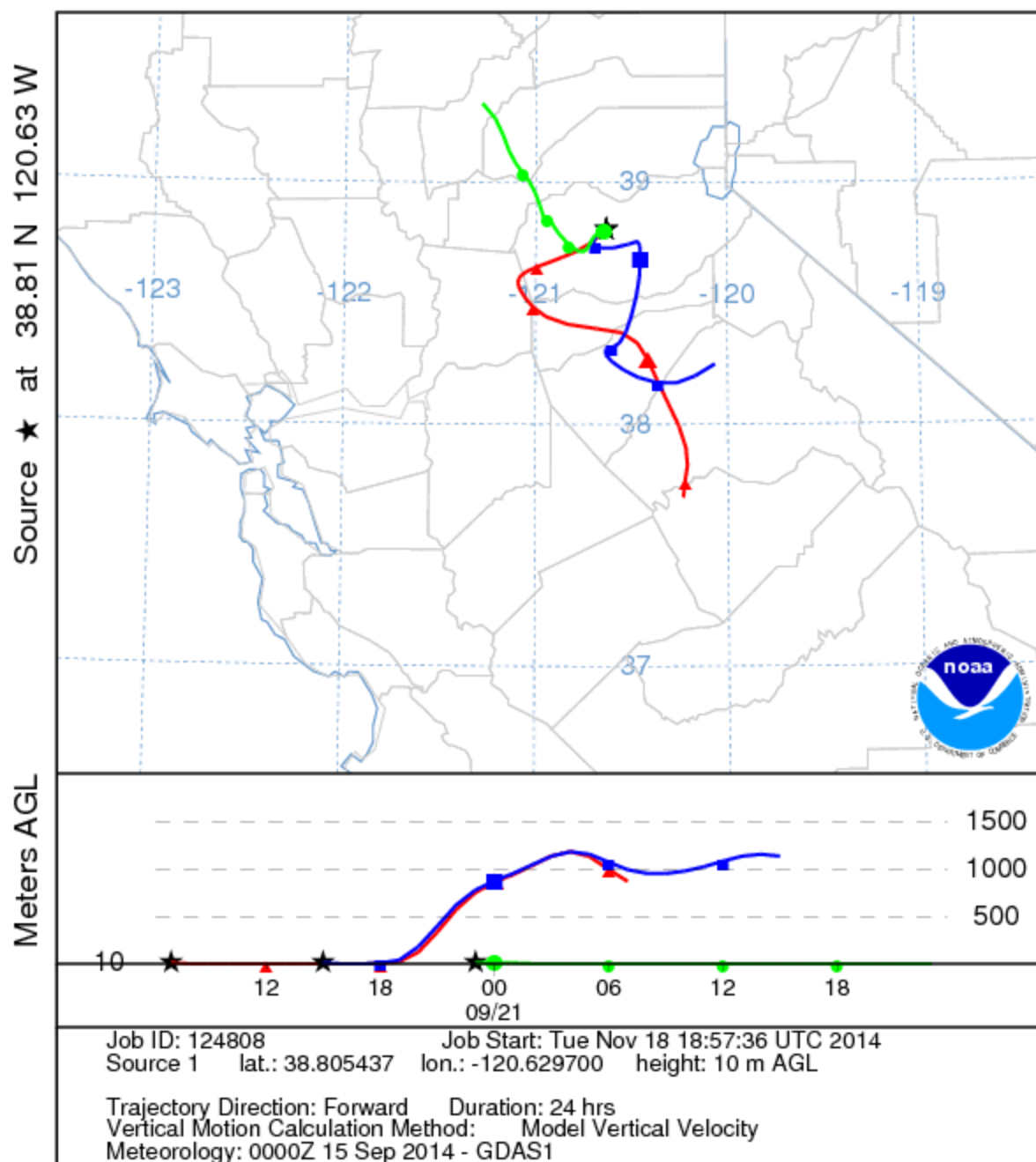
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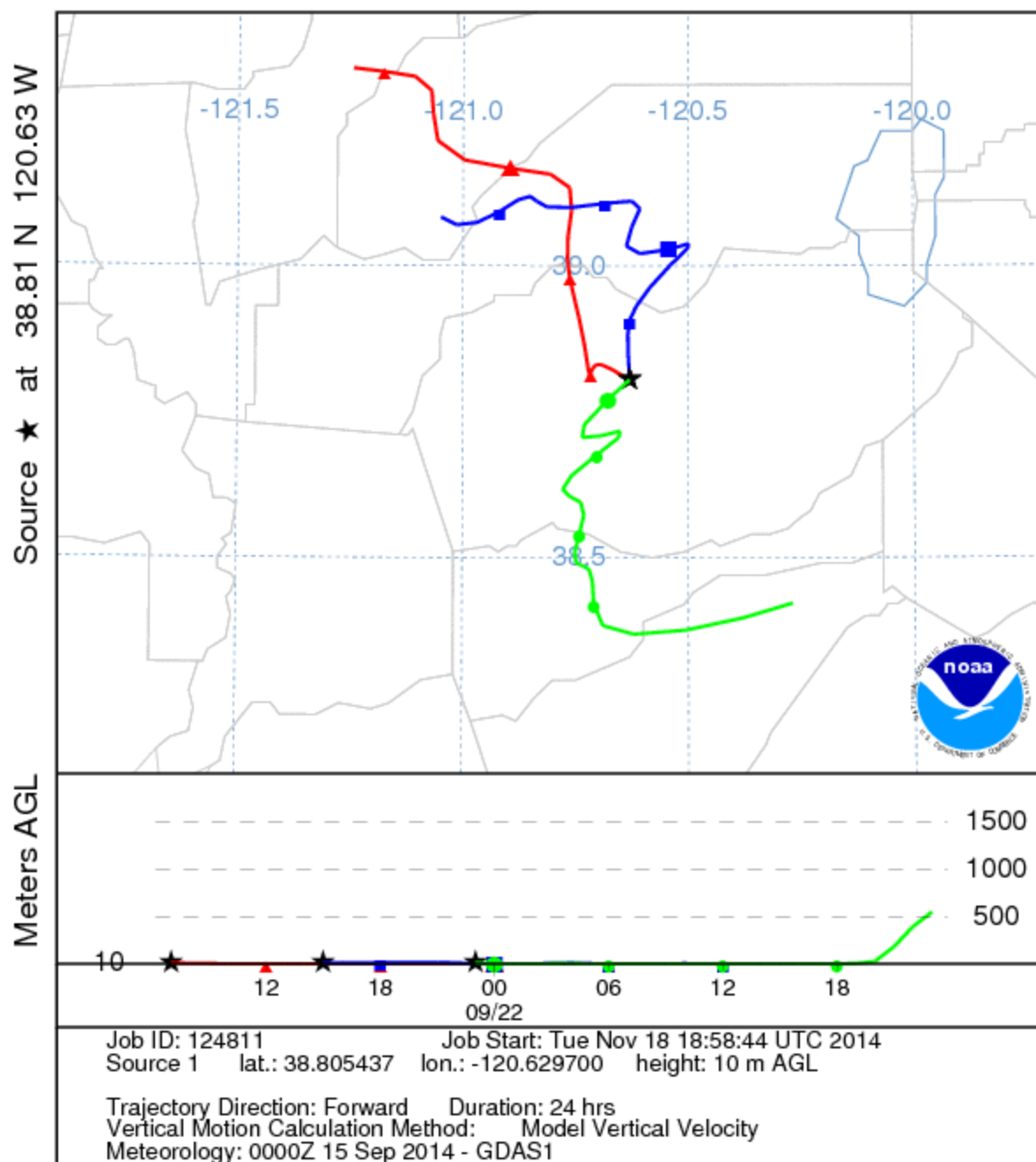
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GDAS Meteorological Data



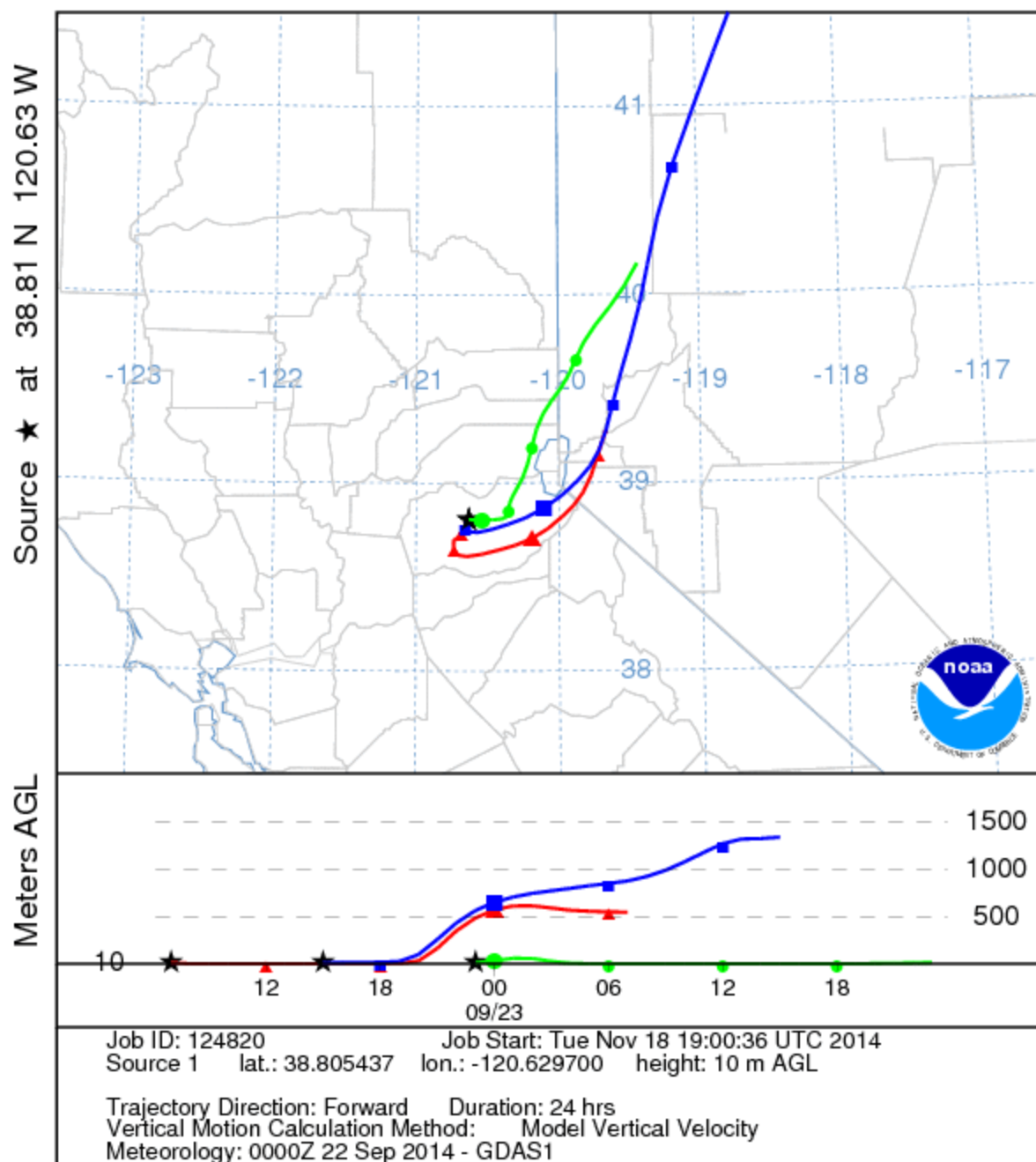
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GDAS Meteorological Data



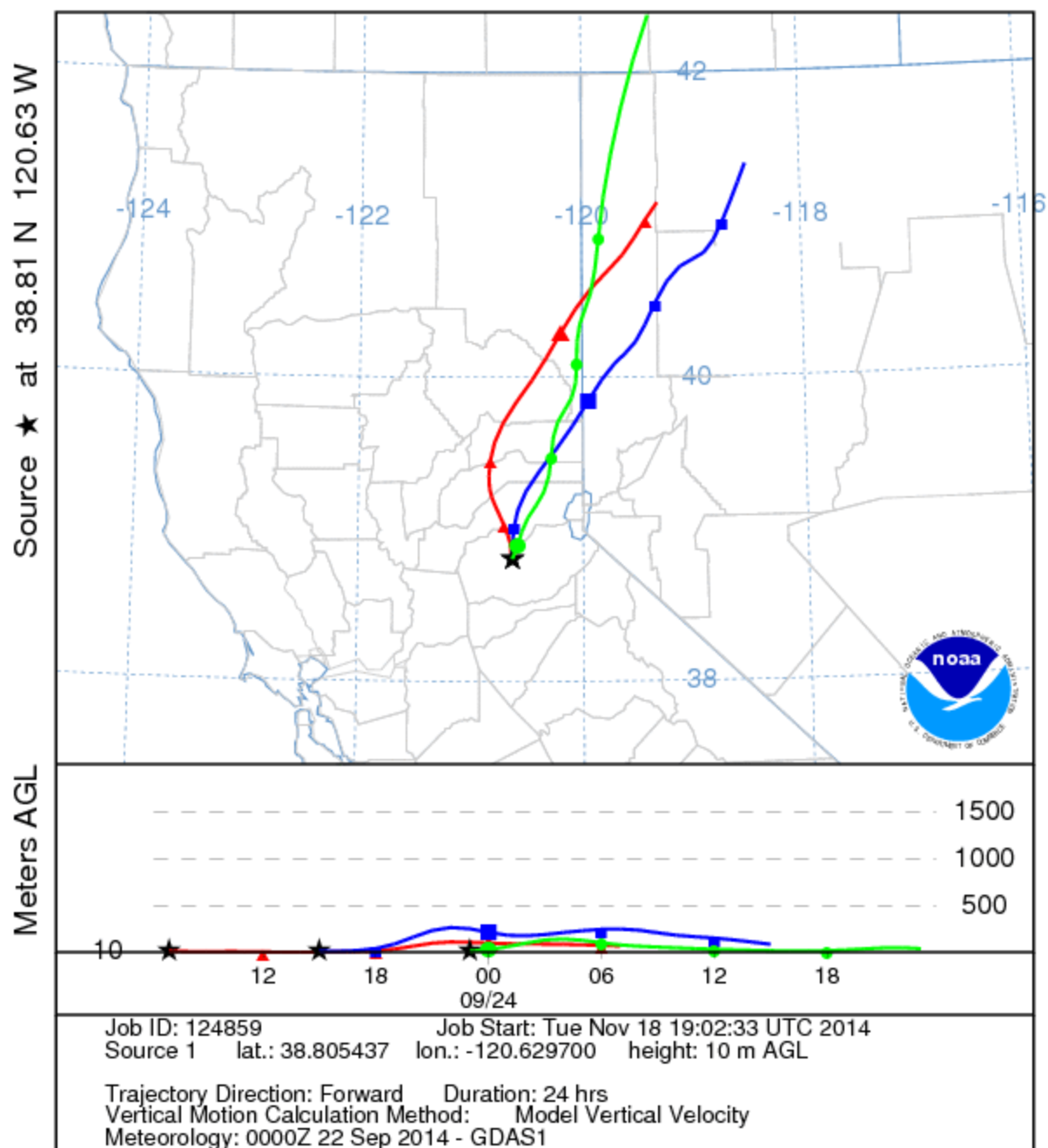
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Forward trajectories starting at 0700 UTC 21 Sep 14
GDAS Meteorological Data



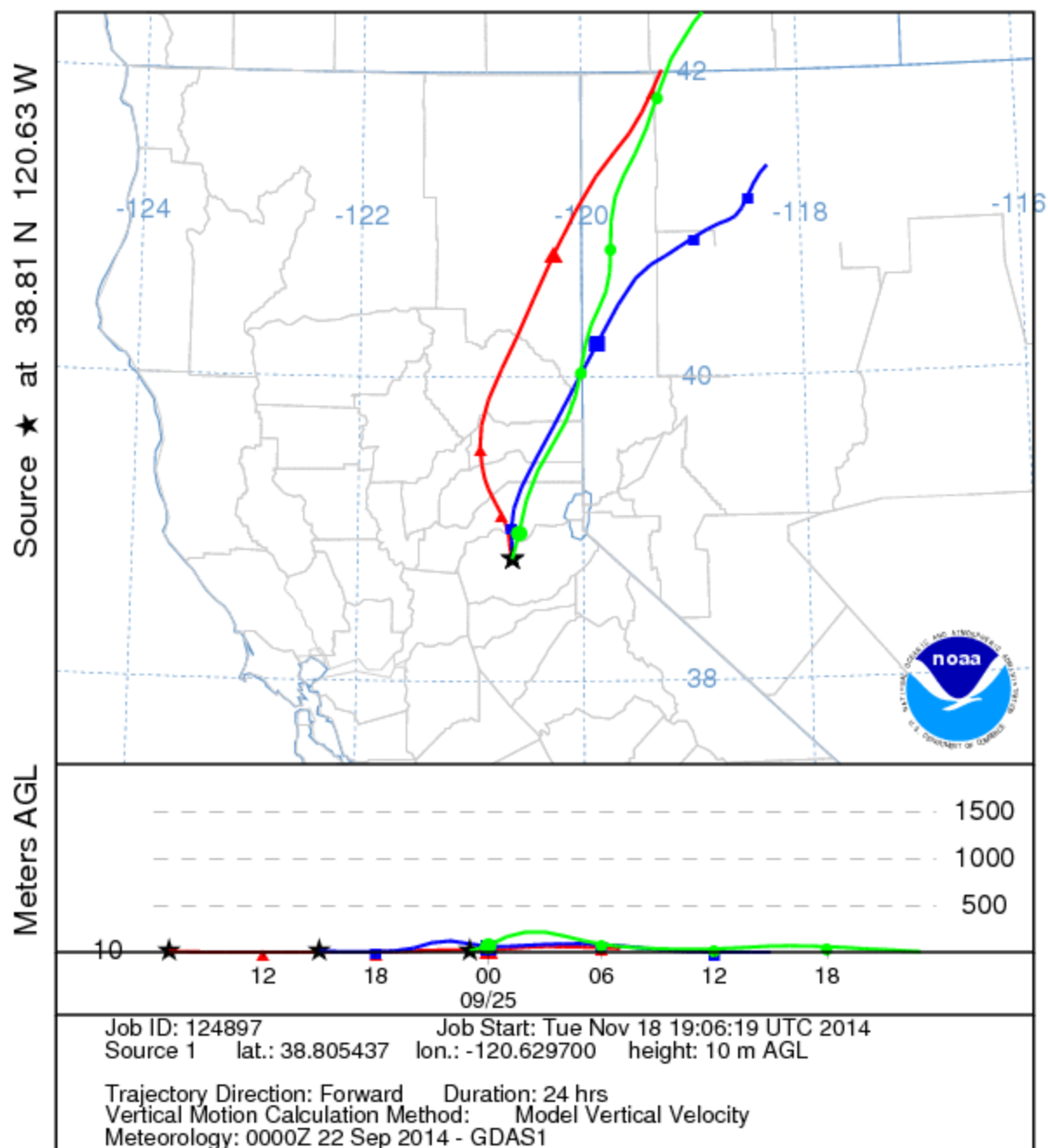
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Forward trajectories starting at 0700 UTC 22 Sep 14
GDAS Meteorological Data



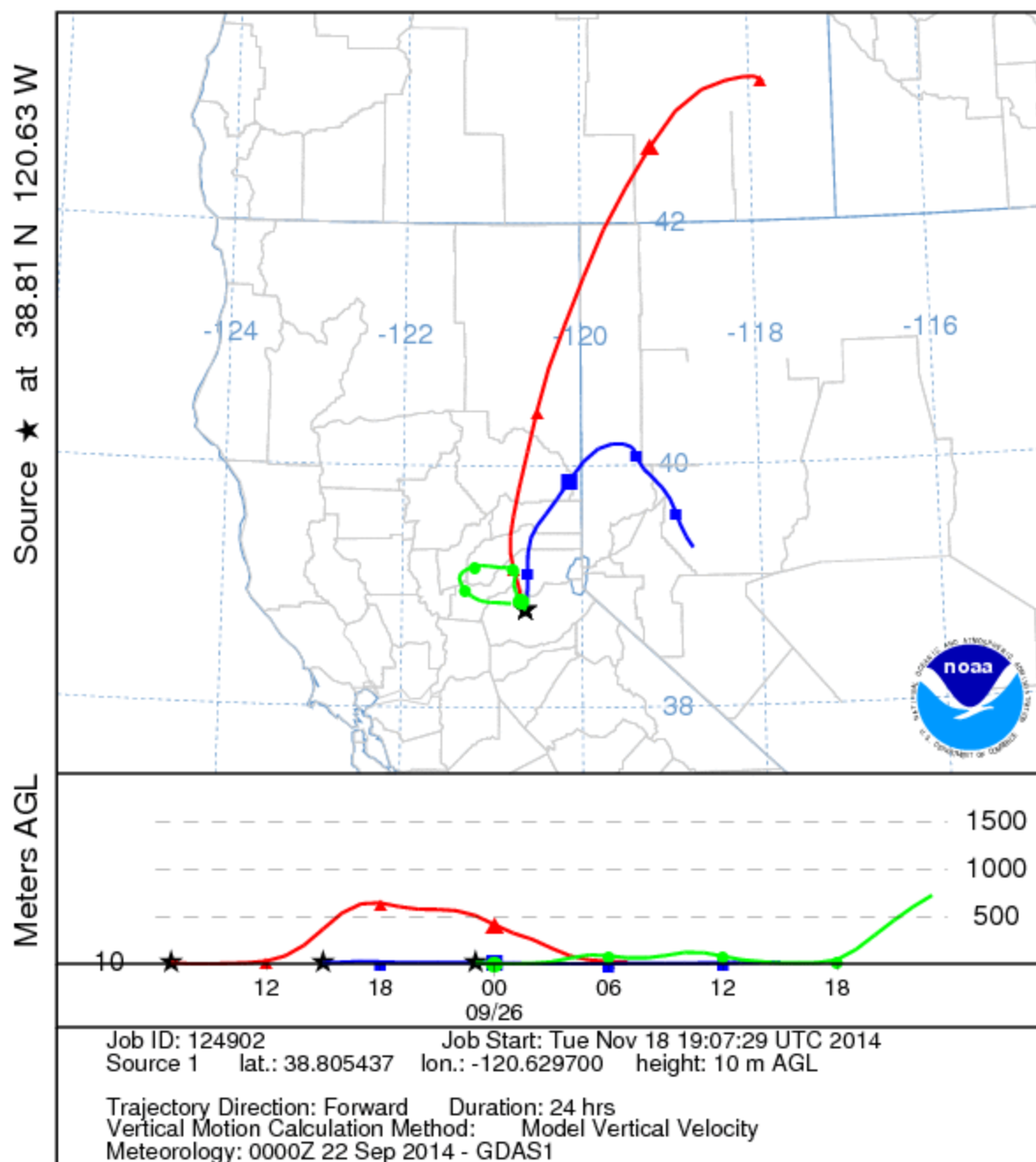
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Forward trajectories starting at 0700 UTC 23 Sep 14
GDAS Meteorological Data



NOAA HYSPLIT MODEL
Forward trajectories starting at 0700 UTC 24 Sep 14
GDAS Meteorological Data



NOAA HYSPLIT MODEL
Forward trajectories starting at 0700 UTC 25 Sep 14
GDAS Meteorological Data



APPENDIX D

PUBLIC OUTREACH AND MEDIA COVERAGE

Air Quality Forecast



Forecast for Reno/Sparks, NV

Today and Tomorrow's Forecast

Monday, Sep 15:	Unhealthy for Sensitive Groups	Orange	Particle Pollution (2.5 microns)
Tuesday, Sep 16:	Good	Green	Particle Pollution (2.5 microns)

Health Message: Active children and adults, and people with lung disease, such as asthma, should reduce prolonged or heavy outdoor exertion.

This air quality update was issued by the Washoe County Health District, Air Quality Management Division. Visit www.OurCleanAir.com for more information.

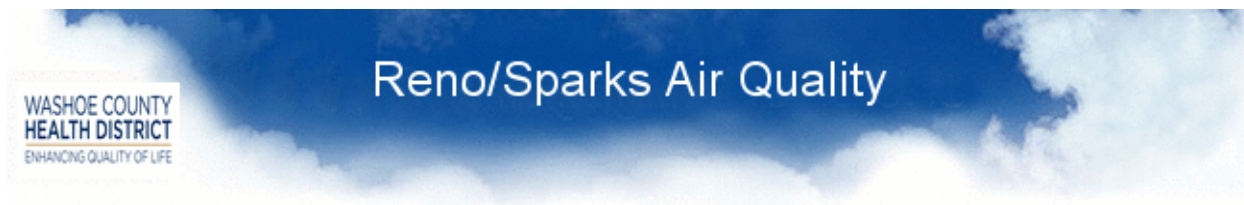
Please Note: AQI Colors displayed above are not the same as the burn code colors.

Do not reply directly to this email. If you want more information on the air quality forecast, or other aspects of the local air quality program, please contact your local air quality agency using the information above. For more information on the U.S. EPA's AIRNow Program, visit <http://www.airnow.gov>.

[To unsubscribe or edit your EnviroFlash account](#)

This message is compliant with the federal Can Spam Act of 2003 (Public Law 108-187)

Air Quality Alert



Current Air Quality for Reno/Sparks, NV

Tuesday, September 16

At 12 AM PDT Particle Pollution (2.5 microns) reached 165 AQI - Unhealthy

Red

Active children and adults, and people with lung disease, such as asthma, should avoid prolonged or heavy outdoor exertion; everyone else, especially children, should reduce prolonged or heavy outdoor exertion.

This air quality update was issued by the Washoe County Health District, Air Quality Management Division. Visit OurCleanAir.com for more information.

Do not reply directly to this email. If you want more information on the air quality forecast, or other aspects of the local air quality program, please contact your local air quality agency using the information above. For more information on the U.S. EPA's AIRNow Program, visit <http://www.airnow.gov>.

[To unsubscribe or edit your EnviroFlash account](#)

This message is compliant with the federal Can Spam Act of 2003 (Public Law 108-187)

Media Advisory





Media Contact

Phillip Ulibarri, Public Information Officer
Washoe County Health District
775.328.2483 (office) 775.772.1659 (cell)

August 29, 2013

MEDIA ADVISORY

Who/What	Washoe County Health District, Air Quality Management Division (AQMD) issues Air Quality Advisory
When	Friday, August 30, through September 6, 2013
Where	Southern Washoe County, Nevada, especially Reno and Sparks
Details	<p>AQMD is notifying the public of continued possible changes in air quality conditions due to smoke primarily from the Rim Fire in California.</p> <p>Just within the past 24 hours the air quality index has fluctuated in and out of the Moderate, Unhealthy and Very Unhealthy ranges. Recent announcements that the Forest Service plans sustained back burning operations on a 20-mile stretch southeast of Hetch Hetchy Reservoir, and that complete containment of the Rim Fire is not expected until September 20, means that extreme fluctuations in air quality can be expected.</p> <p>EPA Region 9 has advised the Health District that the back burns will produce a lot of smoke and will impact downwind areas. Because smoke is highly dependent upon the wind direction and fire activity is expected to increase with the backburns, expect smoky episodes to persist over the next few weeks, particularly in lower elevations during the evenings and early mornings.</p> <p>The time-lapse video linked here exhibits the rapidity in which air quality conditions in the area can change. http://www.youtube.com/watch?v=eUPdNu0nDW0</p> <p>While everybody may experience varying degrees of symptoms, the Health District urges persons in the sensitive groups category including children, the elderly, and anyone with respiratory and heart conditions to take precautions such as: staying indoors with the windows and doors closed and the air conditioner on; limiting outdoor exertion and physical activity; and, drinking plenty of fluids. Persons experiencing respiratory difficulties or other severe symptoms should contact their doctor if they are having health issues which may be attributed to the smoke.</p> <p>Current Washoe County air quality information can be found at www.ourcleanair.com and on  .</p>

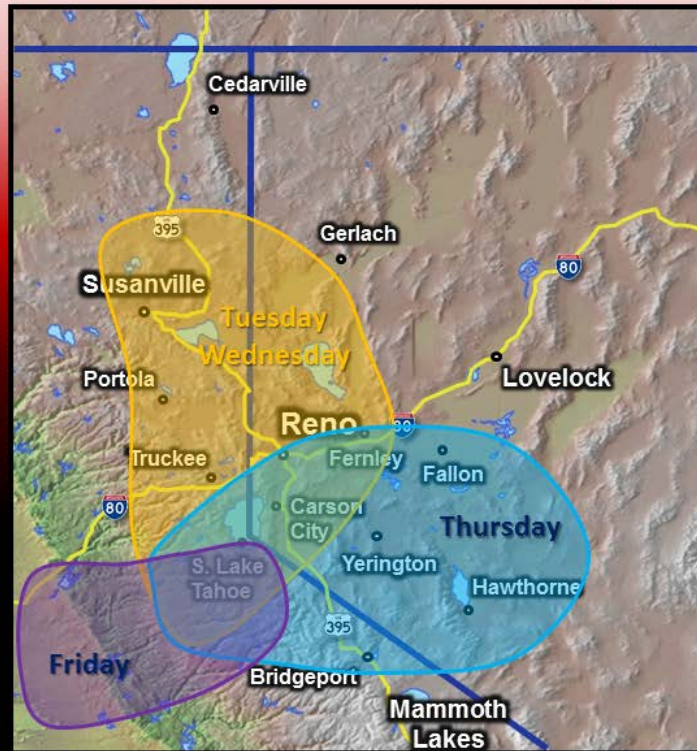
APPENDIX E

SOCIAL MEDIA PUBLIC NOTIFICATION

Potential Smoke Paths from King Fire

Rough Estimates for Smoke Coverage

- Based on latest forecast wind information.
- Subtle changes in wind directions and fire activity can result in adjustments to these smoke forecasts.
- Probably best to plan on periods of reduced air quality and visibility due to smoke through Thursday.
- Consult local air quality district forecasts for more specific information.



Reno National Weather Service
Forecasting for the Sierra and western Nevada since 1905



APPENDIX F

SMOKE IMPACT REPORT KLAMATH NATIONAL FOREST

Smoke Impact Report – Klamath NF, September 20, 2014

Prepared by Ryan Bauer (USDA-FS) and Dan Chan (GA-GFC)

A) Key Points for Consideration:

- The reported growth from last night's infrared flight on the Frying Pan-Falkstein-Man fire was 561 acres.
- The Frying Pan-Falkstein-Man fire continues to burn in the Tom's Valley Creek, Rainey Valley Creek, and Elk Creek drainages toward indirect containment lines on Big Ridge (the Marble Mountain escarpment) and the old Panther fire burn area where the two fires joined. Fire growth also continues in the headwaters of the Wooley creek drainage to the south where the fire continues to back down the slope toward Wooley creek.
- Additional strategic firing was done along Big Ridge to strengthen the indirect containment line there in an effort to prevent the eastward spread of the fires as fire activity in Rainey Valley creek and Elk Creek continues.
- There is a chance that fire could reach Wooley creek near Anthony Mine Camp and the South Fork Wooly Creek confluence by the end of the day. A group of specialized firefighters is being inserted to attempt to hold the fire north of Wooly creek as it backs closer, if it is safe to do so. It will likely take 2 to 3 more days of burning for the fire to reach Wooly Creek further west toward North Fork Camp. Firefighters have been successful at stopping the eastward, northward, and westward progression of the fire and hope that this effort will contain the southern perimeter.
- Smoke impacts in the "moderate" range were seen yesterday evening in Orleans. All other monitors reported good air quality. Air quality data were not available for Willow Creek.
- Southeast winds this morning will shift through the day becoming southwesterly to westerly by late afternoon/evening. Fire activity is anticipated to increase today as conditions continue to dry and the atmosphere becomes more unstable. Local fire danger is back in the high range and increased fire growth is possible if the fire comes into alignment with slope and/or wind.
- ***Today's smoke impacts are forecast to occur mostly north and east of the fires in the upper Klamath River drainage, Scott River drainage, and the upper Shasta, Scott and Quartz Valleys.***
- Westerly winds are expected through the day tomorrow. This will bring elevated smoke concentrations back to the Scott Valley, Quartz Valley, and the Scott River and Upper Klamath River drainages. Increased atmospheric instability should keep most of the smoke aloft during the heat of the day so, impacts are likely to be highest in the late afternoon and evening hours. A general southwesterly wind pattern is forecast for the region through the first half of next week.
- Please review Table 2, Yesterdays summary of 3-hour average air quality data to determine the best & worse time of day. When the weather is persistent, this table Summary can serve as a guide to personal activities and thereby allow for personal mitigation of smoke.

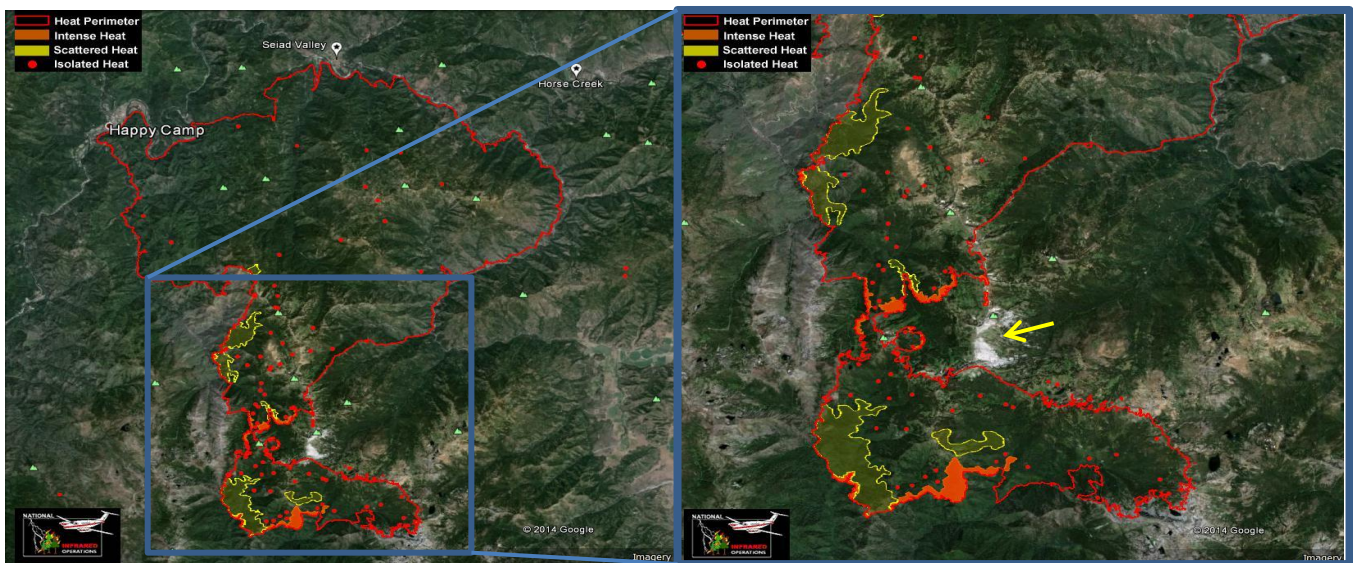
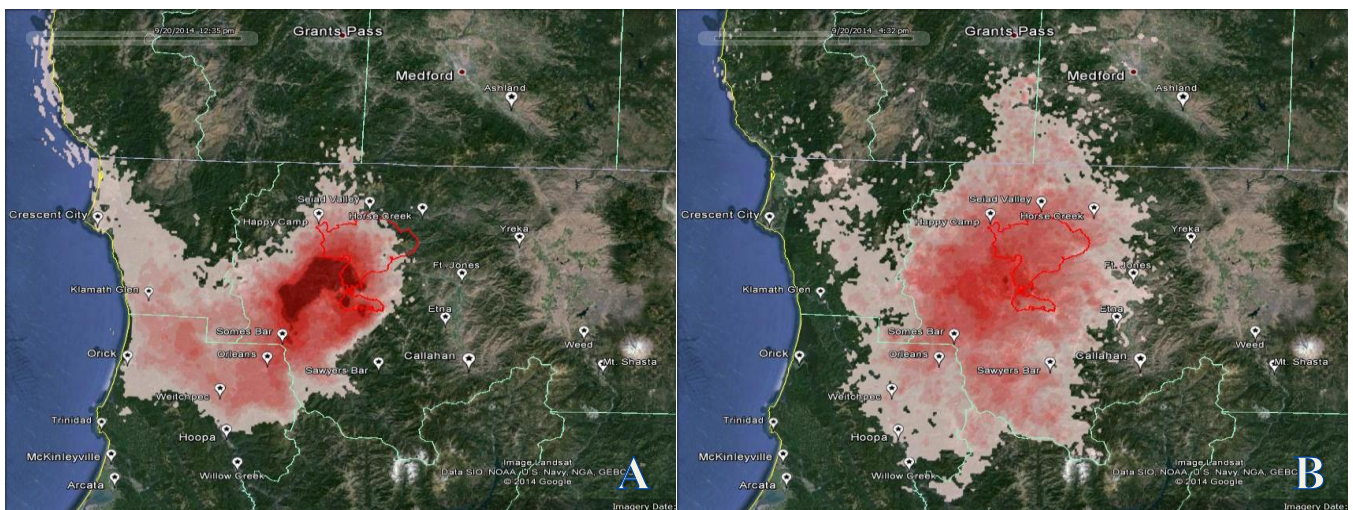


Figure 1 Infrared flight data from 21:30 9/19/2014 showing fire growth and continued burning on the Happy Camp Complex fires. Strategic firing is visible along the Big Ridge containment line (yellow arrow at right).



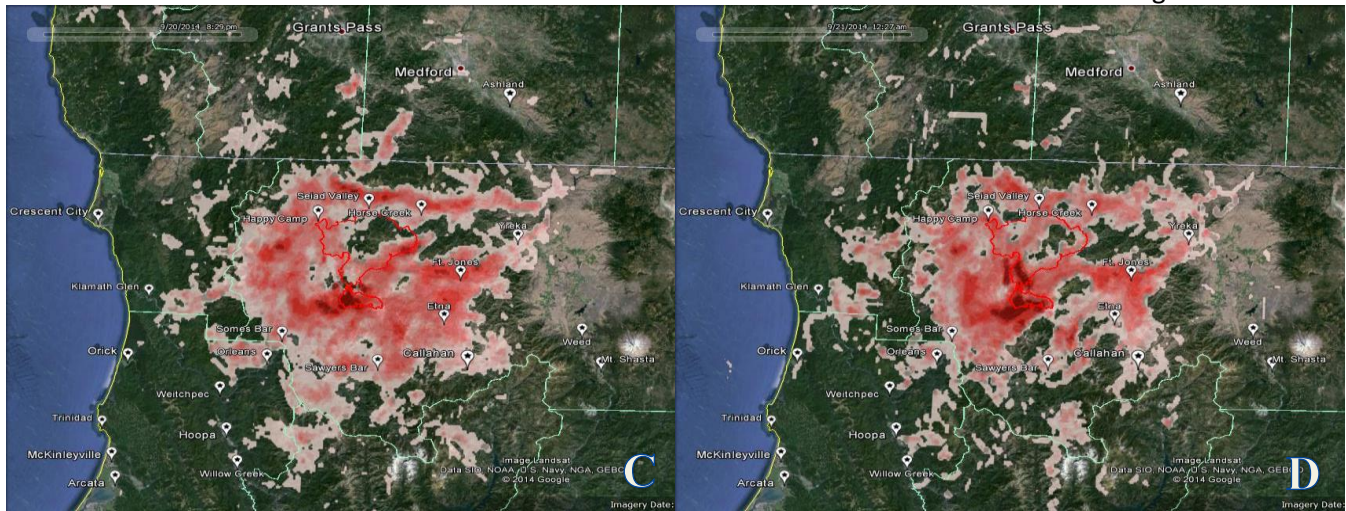


Figure 1a, b, c, d: Outputs from the BlueSky 1km model projecting smoke concentration at the surface for Sept 20th at A) 12:30pm, B) 4:30pm, C) 8:30pm, and D) 12:30am on Sept 21st.

B) Past and Current Conditions:

Yesterday Orleans had “Moderate” air quality during the late afternoon/evening yesterday. Other monitors in the area measured “Good” air quality. Northeasterly wind brought elevated smoke concentration to the Lower Klamath River drainage but no serious impacts.

Today Smoke concentration is expected to improve at Orleans by late morning. Southeast winds in the morning are forecast to shift to southwesterly to westerly winds in the afternoon. Happy Camp and Seiad Valley could begin to see smoke impacts by mid-day as the wind shift moves the smoke plume over them, but by evening conditions should improve. Smoke impacts will likely return to the Scott River drainage and Scott Valley in the late afternoon and evening and may persist overnight. Air quality impacts to southern Oregon are not forecast to be significant but some smoke could reach Grants Pass and Medford by late afternoon.

Tomorrow Westerly wind is predicted to return for tomorrow. This will bring elevated smoke concentrations back to the Scott Valley, Quartz Valley, and the Scott River and Upper Klamath River drainages tomorrow. Increased atmospheric instability should keep most of the smoke aloft during the heat of the day so, impacts are likely to be highest in the late afternoon and evening hours.

Table 1: Observed and forecast 24-hour average Air Quality Index (AQI) values for Sept. 19th (observed), Sept 20th (forecast), and Sept. 21st (forecast) for communities with air quality monitors.

Site	September 19 Yesterday's AQI	September 20 Today's AQI	September 21 Predicted AQI	Likely Time of Highest Impacts Today
Yreka	Good	Good	Moderate	Afternoon/Early Evening
Fort Jones	Good	Moderate	Moderate	Afternoon/Early Evening
Etna	Good	Moderate	Moderate	Evening
Seiad Valley	Good	Moderate	Moderate	Early Afternoon
Happy Camp	Good	Moderate	Good	Early Afternoon
Somes Bar	Good	Good	Good	Late Morning

Orleans	Moderate	Good	Good	Late Morning
Wietchpec	Good	Good	Good	Afternoon
Hoopa	Good	Good	Good	Late Afternoon/Evening
Willow Creek	NA	Good	Good	Evening
Weed	Good	Good	Good	Evening
Sawyer's Bar	Good	Good	Good	Late Morning
PLEASE NOTE: The air quality outlook is based on data from automated instruments that have not been subjected to a quality assurance review. AQI's estimated for sites with air monitors.				

Table 2: Observed 3-hour average air quality monitoring data and estimated Air Quality Index (AQI) values from Sept. 19^h showing timing and intensity of impacts during the day for communities with air quality monitors.

Name	12am	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
Yreka																								
Fort Jones																								
Etna																								
Seiad Valley																								
Happy Camp																								
Somes Bar																								
Orleans																								
Weitchpec																								
Hoopa																								
WillowCreek	No Data																							
Weed																								
Sawyer's Bar																								

Category	Meaning	Actions to Protect Yourself
Good	Air quality is satisfactory and poses little or no health risk.	None.
Moderate	Air Quality is acceptable for most. There may be moderate health concern for a small number of sensitive people.	Unusually Sensitive people should consider reducing prolonged or heavy outdoor recreation.
Unhealthy for Sensitive Groups(USG)	Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly.	People with heart or lung disease, children and older adults should avoid all physical outdoor activity.
Unhealthy	Increasing aggravation of heart or lung	People with heart or lung disease, older

	disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.	adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.
Very Unhealthy	Increasing aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.	People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.
Hazardous	Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.	People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.

Check out the California Smoke Blog

<http://californiasmokeinfo.blogspot.com/>

Questions?

Feel free to contact us:

Ryan Bauer rbauer@fs.fed.us

Dan Chan dchan@GFC.STATE.GA.gov

APPENDIX G

SMOKE IMPACT REPORT ICA

Smoke Impact Summary # 09 – King Fire, September 24, 2014

Prepared by Gary M. Curcio, (IPAFES) and Charles Sams (USFS, R-8)

Key Points for Consideration:

1. **RED FLAG WARNING CONTINUES TODAY THROUGH THE BURN PERIOD.**

Last night SE ridge top winds and eventual natural drainage flows transported smoke to the NWW (see Figure1). This dispersion flow will eventually give way to afternoon winds WSW at 10 to 20 mph with gusts to 30 coupled with warmer temperatures and lower RH. These conditions will provide a challenge for suppression crews to minimize new fire growth and increasing smoke production.

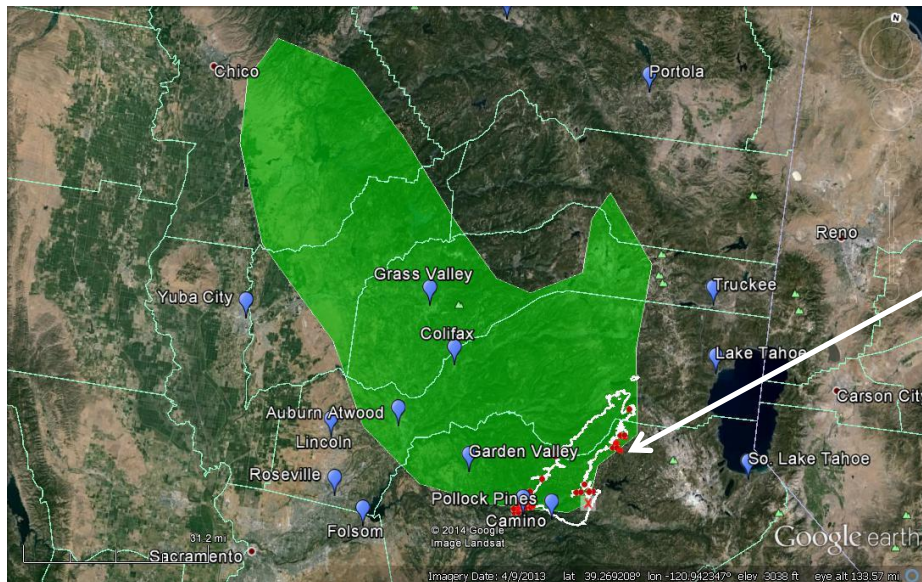


Figure1

HMS captures the positioning of the King's Fire light smoke plume. Its area of influence is in nearby foothills and lower mountains. Heat signatures can be seen along the fire's perimeter. (Red-dots)

The unique aromatic smell and taste of wildfire smoke reached the Foresthill ICP by 1:07am Wednesday.

2. Today's weather conditions will test fire lines more so than yesterday. Yesterday's strong winds only materialized at the higher elevations. The moderate winds at lower elevations facilitated excellent fire suppression progress in Zone 1 (north part of the fire). The large spot fire on Chipmunk Ridge and associated nearby small spot fires, received aggressive mop-up.

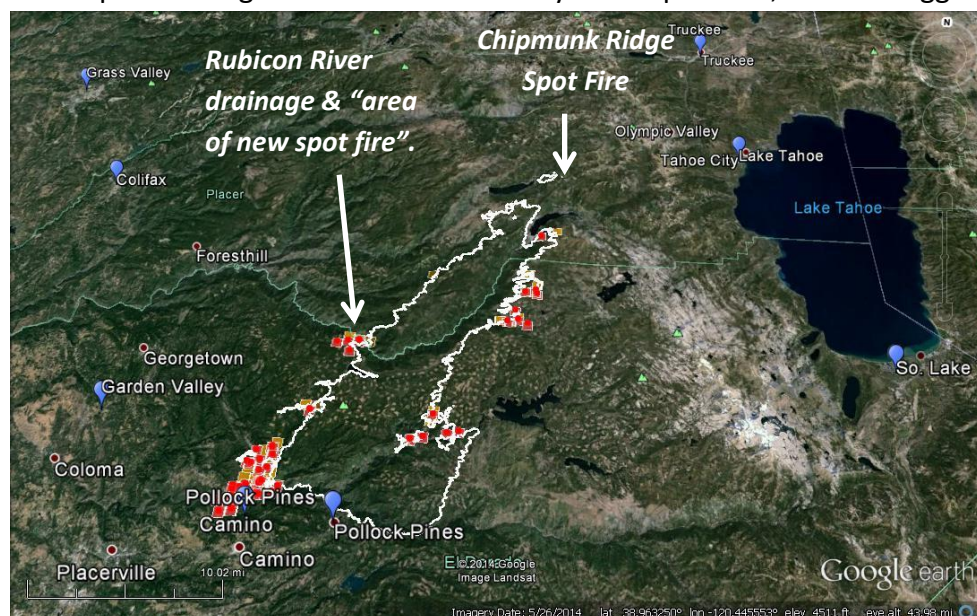


Figure2

Modis heat signatures identify burnout operations which have taken place through the day and night (Red dots). These also become projection points or points of origin for Blue-Sky Framework (BSF) smoke modeling custom run. analysis performed by Air Resource Advisors.

On the west side of the fire there was a new spot fire that crossed the Rubicon drainage, receiving focused attention by suppression crews.

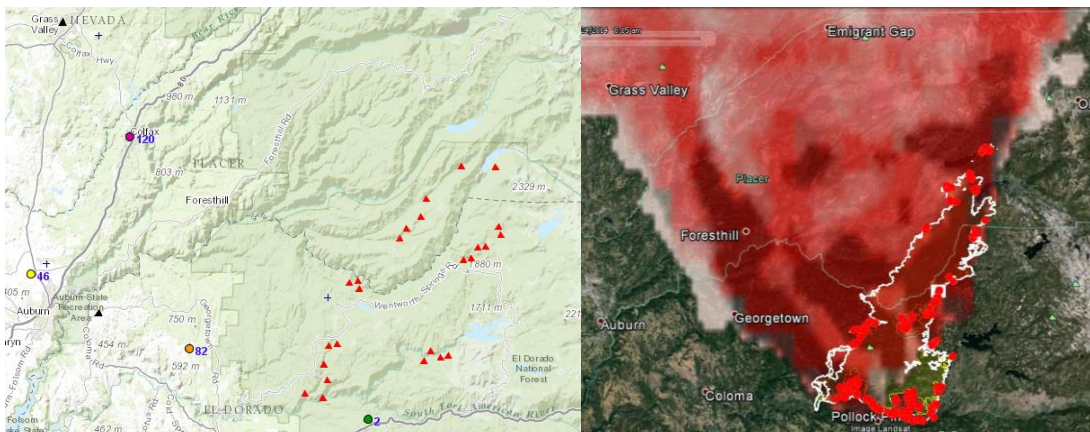
3. Fire has burned approximately 92,960 acres as of 9/24/14.
4. Yesterday the fire increased in size by approximately 3,385 acres. For today, expected growth for estimating emissions is still at 5,000 acres.



Figure3.

Last night's infra-red flight shows more areas of isolated heat along the fire perimeter. This finer detail information reveals there are more areas that will contribute towards today's smoke production.

5. Taking into account today's weather (Red Flag) and the associated Turner Stability Index (very unstable air between 10am to 6 pm), smoke production is projected to be abundant, well dispersed and capable of long distance transport. Southeast Oregon should be impacted today.
6. Many local communities to the NE can be impacted. These include but not limited to Truckee, Squaw Valley, Verdi, Cold Springs, Doyle, Portola, etc., and as far north as Denio until the plume reaches Oregon. The plume just squeezes by Reno, NV and is modelled to hit Humboldt. Hopefully wildfire smoke that is not lifted and stays with the vectored surface plume will be diluted enough to reach AQI levels rated no more severe than Unhealthy for Sensitive Groups to Unhealthy.
7. Air Quality Stations Charts for the King Fire will have to be mailed later as we are having software program issues. Also, the Wildfire AQ Summary table is presently being prepared and it will follow in an update as well. It will summarize the AQI observed yesterday at each station site. It will also project for Today and Tomorrow.
8. This morning the ICP was again impacted by smoke as modelled by Blue-Sky Framework. Unfortunately the Foresthill EBAM PM_{2.5} observations cannot be accessed remotely. There are adjacent EBAM readings of 46, 120, 82 μm^3 recorded at 7:00 am. This hazardous impact will be eventually mitigated by changing weather (Southwest winds) and Turner Stability.



9. Provided below are snapshots of selected times of Blue-Sky Framework from 00Z_092414_run.

Figure 1 Blue-Sky Smoke model projection for September 24th @ 10:00am. With the morning sun, the now familiar SW winds plus instability return, consolidating a growing plume characterized by hazardous concentrations well NE of Reno and along the plume's SE flank, centered on the now familiar Pollock Pines – Truckee vector.

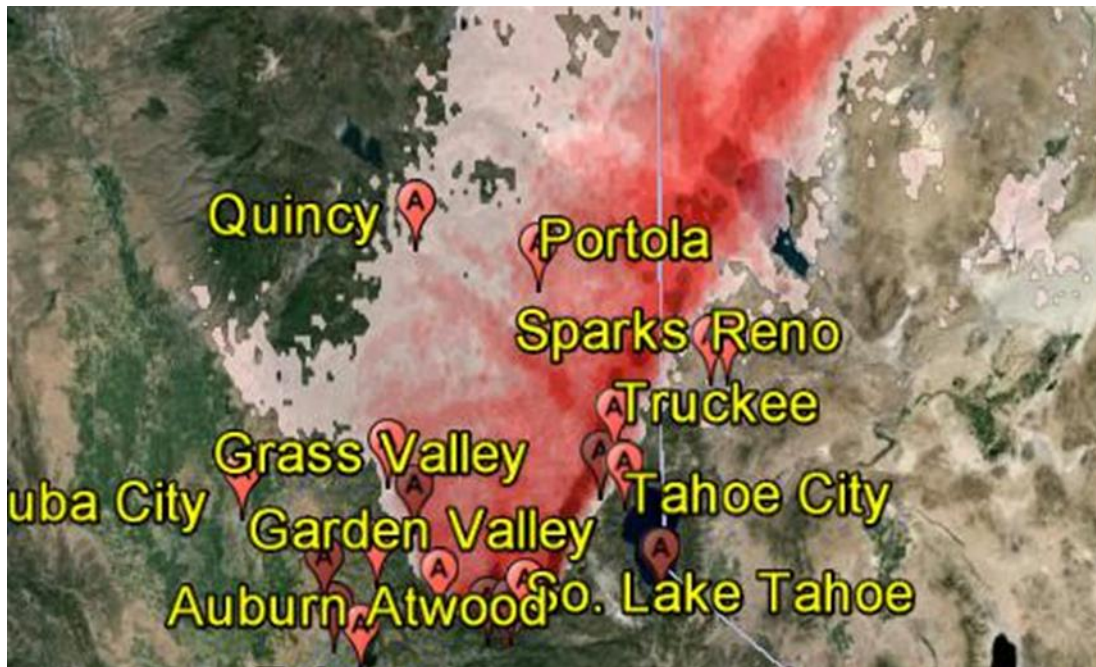


Figure 2 Blue-Sky Smoke model projection for September 24th @ 4:10pm. By late afternoon, the strong SW winds have greatly narrowed the plume, as particulate concentrations see a short period of abatement along both flanks of the plume.

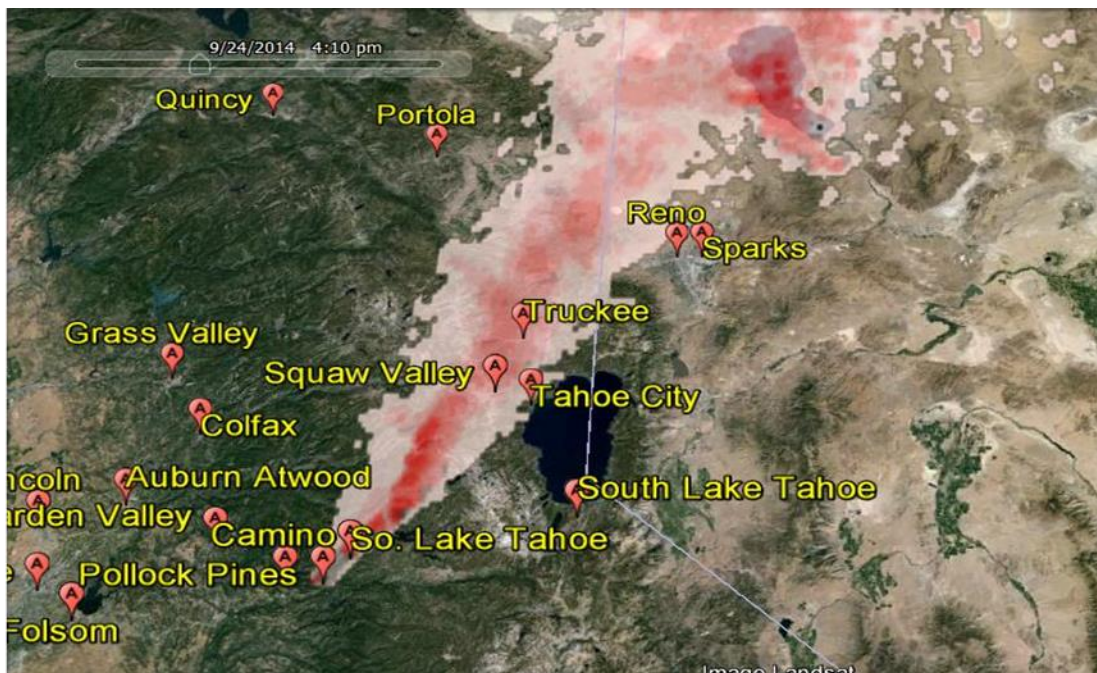


Figure 3 Blue-Sky Smoke model projection for September 24th @ 7:43pm. Around sunset, the plume begins to breakup, as the winds begin to shift toward the S. However, hazardous conditions persist intermittently within the center of the plume.

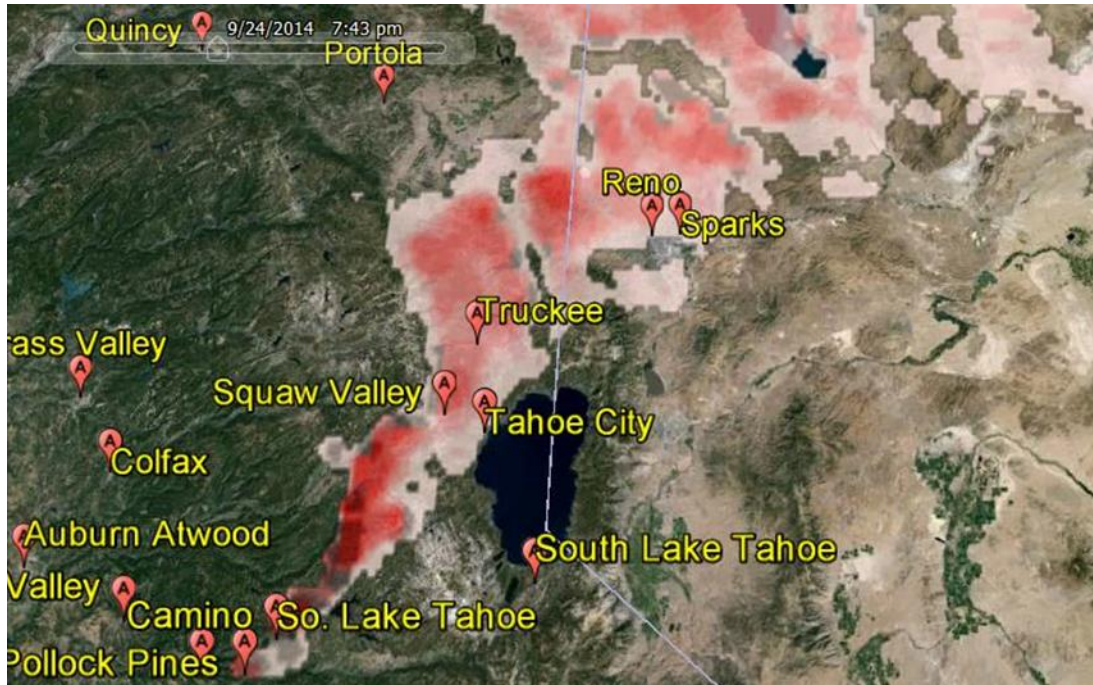
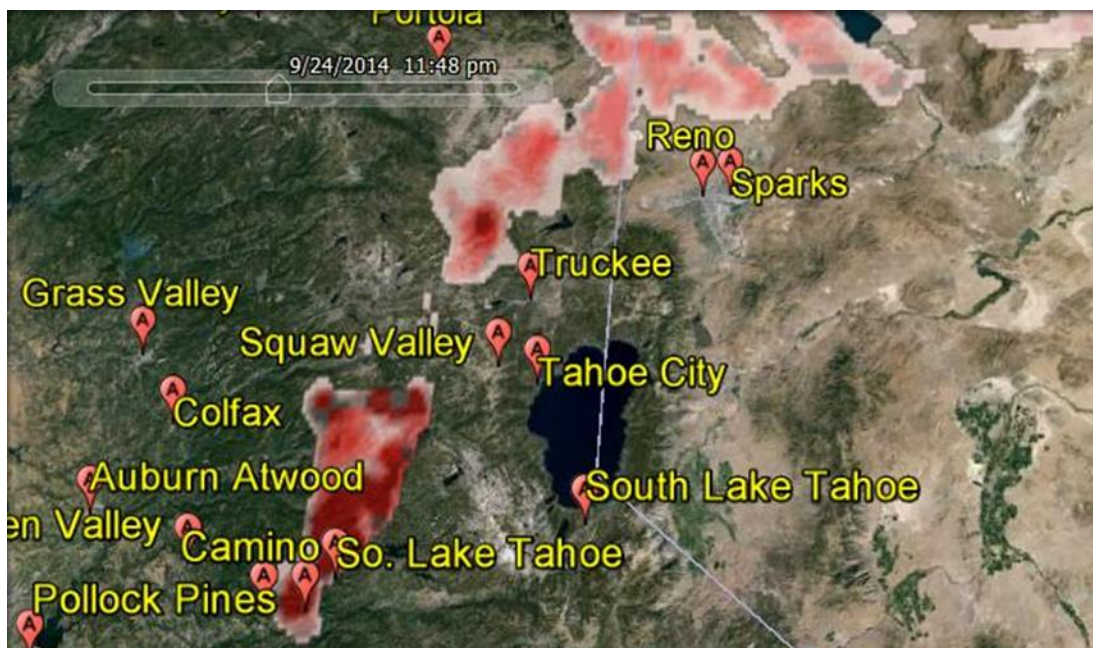


Figure 4 Blue-Sky Smoke model projection for September 24th @ 11:48pm. By midnight, much of the area NE of the fire perimeter clears briefly, before hazardous concentrations return by 4am the next day.



APPENDIX H

SCHOOL AND CHILD CARE RECOMMENDATIONS

Recommendations for Schools and Child Cares on Poor Air Quality Days

Air Quality Index (AQI) Table for Ozone and PM_{2.5} with Visibilities for Wildfire Smoke¹

Activity	Good=0 to 50 (Visibility 11 miles and up)	Moderate=51 to 100 (6 to 10 miles)	Unhealthy for Sensitive Groups*= 101 to 150 (3 to 5 miles)	Unhealthy=151 to 200 (1.5 to 2.75 miles)	Very Unhealthy= 201 to 300 (1 to 1.25 miles)	Hazardous= 301 to 500 (less than 1 mile)
Recess (15 min)	No Restrictions	No Restrictions	Make indoor space available to all children especially those with lung/heart illnesses or who complain about difficulty breathing.	Restrict outdoor activities to all children and limit prolonged or heavy exertion.	Restrict outdoor activities to all children and limit indoor activities to light to moderate exercise.	Keep everyone indoors and limit indoor activity to light exercise.
P.E. (1 hr)	No Restrictions	No Restrictions	Make indoor space available to all children. High school students with lung/heart conditions should limit prolonged or heavy exertion.	Restrict outdoor activities to all children and limit prolonged or heavy exertion.	Restrict outdoor activities to all children and limit indoor activities to light to moderate exercise.	Keep everyone indoors and limit indoor activity to light exercise.
Scheduled Sporting Events	No Restrictions	Unusually sensitive children and high school students should limit prolonged or heavy exertion during scheduled sporting events.	High school students with asthma or other respiratory or cardiovascular illness should be medically managing their condition. Increase rest periods and substitutions to lower breathing rates.	Consideration should be given to rescheduling or relocating the event.	Event should be rescheduled or relocated.	Event should be rescheduled or relocated.
Athletic Practice and Training (2 to 4 hrs)	No Restrictions	Unusually sensitive children and high school students should limit prolonged or heavy exertion during practice or training.	High school students with asthma or other respiratory or cardiovascular illness should be medically managing their condition. Increase rest periods and substitutions to lower breathing rates.	Activities over 2 hours should decrease intensity and duration. Add rest breaks or substitutions to lower breathing rates.	Practice or training should be rescheduled or relocated.	Practice or training should be rescheduled or relocated.

¹ Visibility conversions to AQI were taken from "Wildfire Smoke: A Guide for Public Health Officials" (Rev. July 2008 with 2012 AQI updates)

*Children are anyone from Infant to 8th Grade. High School Students are indicated and assumed to be the participants for Scheduled Sporting Events and Practice and Training activities. For children, consideration for relocation or rescheduling should be given at the Unhealthy for Sensitive Groups range for Sporting Events and Practice and Training activities.



This guidance was developed by the Washoe County Health District, Air Quality Management Division.
The AQI table was adapted from the Sacramento Metropolitan Air Quality Management District "Air Quality Guidelines for Schools."
Revised August 28, 2013



How to use this AQI Table

The use of this AQI table by Washoe County Schools and Child Care Facilities is voluntary, but is recommended by the Washoe County Health District, Air Quality Management Division (AQMD) based on the Environmental Protection Agency's (EPA) guidelines for Ozone and PM_{2.5}.

How to use this AQI table:

The following steps are an example situation:

Step 1: Check the AQI forecast for Tuesday on Monday especially during potentially poor air quality days. Forecast AQI information is found on AirNow (airnow.gov). Forecasts are also available on ourcleanair.com, the AQI Hotline 785-4110, and on facebook and twitter.

Step 2: If the forecast is "Very Unhealthy", follow the guidance in the AQI table; for recess and P.E. restrict outdoor activities to all children and limit exercise indoors to light to moderate exercise; Sporting events, training, and practice should be relocated or rescheduled.

Step 3: On Tuesday, check the current AQI on AirNow before an activity like recess, P.E., scheduled event, or practice/training and use the AQI table provided.

(Only during wildfires) Step 4: In addition to the current AQI provided by AirNow, go outside and find a permanent structure or geologic feature (hill, mountain) that has a known distance from school or child care. For example, if the structure or feature is 1 mile away and it cannot be seen, we are most likely in the "Very Unhealthy" or "Hazardous" ranges. Follow the AQI table guidelines, for the category indicated based on your visibility.

Limitations of AirNow

Data for AirNow is sent every hour by AQMD to the website at the top of the hour. The AQI based on this data is typically updated at the bottom of that same hour. This lag is an important limitation and must be considered when determining important health decisions. Conditions can change rapidly during poor air quality days (wildfire smoke, inversions, dust storms, etc.). Generally, if you see or smell the smoke or dust, stay indoors. As always with technology, there can be malfunctions and glitches that are temporary in which our AQI calculations will be provided as needed by phone, email, facebook, and twitter.

Ozone

Ozone (O₃) is an invisible pollutant and a strong irritant that can cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. For Washoe County, ozone is a summertime, regional pollutant in which all Washoe County schools and child cares will experience similar levels. Ozone usually reaches its highest level during the afternoon and early evening hours, and the highest concentrations are often downwind of the urban area. Indoor levels of ozone are usually less than outdoor air.

Fine Particulates (PM_{2.5})

In Washoe County, fine particulate (2.5 microns and smaller) levels in outdoor air generally are highest during the fall and winter months due to woodstove and fireplace use especially during cold air inversions. Children who are exposed to fine particles may experience respiratory symptoms such as asthma symptoms and difficulty breathing. Small particles may enter deep parts of the lung and cross into the bloodstream and circulate in the body. Smoke from wildfires is primarily made up of PM_{2.5}. **The visibility to AQI conversion can only be used during wildfire smoke events.**

AQI versus Burn Code

Unique to Washoe County, the wintertime Burn Codes (Nov. 1 – Feb. 28) are issued each morning and afternoon or as conditions change. The program began in the mid 1980s to help with particulate matter levels and is still used. The Green, Yellow, and Red color scheme was implemented for the public to understand when to burn or not. Burn Code colors are **NOT** AQI colors. The Air Quality Index for PM_{2.5} was developed by the EPA more recent and adopted its own color scheme. A Red Burn Code does not equal a red AQI (Unhealthy 151-200) and a yellow AQI (Moderate 51-100) does not equal a Yellow Burn Code. Burn Codes, although designed to protect human health, are not AQIs.



This guidance was developed by the Washoe County Health District, Air Quality Management Division.
The AQI table was adapted from the Sacramento Metropolitan Air Quality Management District "Air Quality Guidelines for Schools."
Revised August 28, 2013



APPENDIX I

PUBLIC INSPECTION PLAN

A Notice of Proposed Action was published in the Reno Gazette Journal July 1, 13, 24, 2015 notifying the public that the Draft 2014 King Fire Exceptional Events Demonstration was available for public comment between July 1 through August 3, 2015. The AQMD did not receive any public comments during the public comment period.

The Draft 2014 King Fire Exceptional Events Demonstration was available on the AQMD website (OurCleanAir.com) and a hard copy was available at the AQMD office between July 1 through August 3, 2015.